



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

NOTICE OF 30-DAY PERIOD FOR PUBLIC COMMENT

Preliminary Findings Regarding a New Source Review and Part 70 Operating Permit
for New Horizons Baking Company in Steuben County

Significant Source Modification No. 151-32848-00060
Part 70 Operating Permit No. T151-31292-00060

The Indiana Department of Environmental Management (IDEM) has received applications from the New Horizons Baking Company located at 700 W. Water Street, Fremont, Indiana 46737 regarding the transition from a Minor Source Operating Permit (MSOP) issued on May 10, 2010, to a Part 70 Operating Permit. If approved by IDEM's Office of Air Quality (OAQ), this proposed modification would allow the New Horizons Baking Company to make certain changes at its existing source. New Horizons Baking Company has applied to transition from its existing MSOP to a Part 70 Operating Permit, to update emission units for the Bun Line (Line A) and Muffin Line (Line B), to incorporate VOC emissions from proofing, to update the VOC emission factor for Line B based on stack testing performed November 2010, and to construct and operate a new muffin line (Line H).

The applicant intends to construct and operate new equipment that will emit air pollutants; therefore, the permit contains new or different permit conditions. In addition, some conditions from previously issued permits/approvals have been corrected, changed or removed. These corrections, changes, and removals may include Title I changes. IDEM has reviewed this application, and has developed preliminary findings, consisting of a draft permit and several supporting documents, that would allow the applicant to make this change.

IDEM is aware that various emission units may have been constructed and operated prior to receipt of the proper permit. IDEM is reviewing this matter and will take appropriate action. The draft Significant Source Modification and Part 70 Operating Permit contain provisions to bring unpermitted equipment into compliance with construction and operation permit rules.

A copy of the permit application and IDEM's preliminary findings are available at:

Fremont Public Library
3145 East North Street, P.O. Box 7
Fremont, IN 46737-0007

and

IDEM Northern Regional Office
300 N. Michigan Street, Suite 450
South Bend, IN 46601-1295

A copy of the preliminary findings is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>.

How can you participate in this process?

The date that this notice is published in a newspaper marks the beginning of a 30-day public comment period. If the 30th day of the comment period falls on a day when IDEM offices are closed for business, all comments must be postmarked or delivered in person on the next business day that IDEM is open. You may request that IDEM hold a public hearing about this draft permit. If adverse comments concerning the **air pollution impact** of this draft permit are received, with a request for a public hearing,

IDEM will decide whether or not to hold a public hearing. IDEM could also decide to hold a public meeting instead of, or in addition to, a public hearing. If a public hearing or meeting is held, IDEM will make a separate announcement of the date, time, and location of that hearing or meeting. At a hearing, you would have an opportunity to submit written comments and make verbal comments. At a meeting, you would have an opportunity to submit written comments, ask questions, and discuss any air pollution concerns with IDEM staff.

Comments and supporting documentation, or a request for a public hearing should be sent in writing to IDEM at the address below. If you comment via e-mail, please include your full U.S. mailing address so that you can be added to IDEM's mailing list to receive notice of future action related to this permit. If you do not want to comment at this time, but would like to receive notice of future action related to this permit application, please contact IDEM at the address below. Please refer to Significant Source Modification No. 151-32848-00060 and Part 70 Operating Permit No. T151-31292-00060 in all correspondence.

To Contact IDEM:

Jason R. Krawczyk
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53, Room 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for extension (3-0870)
Or dial directly: (317) 234-5174
Fax: (317) 232-6749 attn: Jason R. Krawczyk
E-mail: jkrawczyk@idem.in.gov

All comments will be considered by IDEM when we make a decision to issue or deny the permit. Comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permitting process (326 IAC 2), air quality issues, and technical issues. IDEM does not have legal authority to regulate zoning, odor or noise. For such issues, please contact your local officials.

For additional information about air permits and how you can participate, please see IDEM's **Guide for Citizen Participation and Permit Guide** on the Internet at: www.idem.in.gov.

What will happen after IDEM makes a decision?

Following the end of the public comment period, IDEM will issue a Notice of Decision stating whether the permit has been issued or denied. If the permit is issued, it may be different than the draft permit because of comments that were received during the public comment period. If comments are received during the public notice period, the final decision will include a document that summarizes the comments and IDEM's response to those comments. If you have submitted comments or have asked to be added to the mailing list, you will receive a Notice of the Decision. The notice will provide details on how you may appeal IDEM's decision, if you disagree with that decision. The final decision will also be available on the Internet at the address indicated above, at the local library indicated above, and the IDEM public file room on the 12th floor of the Indiana Government Center North, 100 N. Senate Avenue, Indianapolis, Indiana 46204-2251 and the IDEM Northern Regional Office, 300 N. Michigan Street, Suite 450, South Bend, IN 46601-1295.

If you have any questions please contact Jason R. Krawczyk of my staff at the above address.



Nathan C. Bell, Section Chief
Permits Branch
Office of Air Quality



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Mr. Matthew S. Bowers
Operations Manager
New Horizons Baking Company
700 West Water Street
Fremont, IN 46737

Re: Significant Source Modification
No.151-32848-00060

Dear Mr. Bowers:

New Horizons Baking Company was issued a Minor Source Operating Permit Renewal on May 10, 2010, for a stationary bread baking plant. Applications requesting changes to this permit were received on September 28, 2012 and February 19, 2013. New Horizons Baking Company has applied to transition from its existing MSOP to a Part 70 Operating Permit, to update emission units for the Bun Line (Line A) and Muffin Line (Line B), to incorporate VOC emissions from proofing, to update the VOC emission factor for Line B based on stack testing performed November 2010, and to construct and operate a new muffin line (Line H). Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

- (a) One (1) proof box for the bun line, identified as Line A Proof Box. Line A was constructed in 1979, with a maximum throughput capacity of 7,700 pounds of bread per hour.

Note: Although previously included in the permit, the source did not provide the potential to emit of the proof box when it was added in MSOP Minor Permit Revision 151-28993-00060, issued May 10, 2010. Based on the PTE, the source did not obtain the proper construction or operation approval for the Line A Proof Box.

- (b) One (1) proof box for the muffin line, identified as Line B Proof Box. Line B was constructed in 1983 and modified in 2008, with a maximum throughput capacity of 3,400 pounds of bread per hour.

Note: Although previously included in the permit, the source did not provide the potential to emit of the proof box when it was added in MSOP Minor Permit Revision 151-28993-00060, issued May 10, 2010. Based on the PTE, the source did not obtain the proper construction or operation approval for the Line B Proof Box.

- (c) One (1) dough mixer, installed in 2010, identified as mixer B1, with a capacity of 7,700 pounds/hr, exhausting indoors.

- (d) One (1) muffin line, identified as Line H, approved in 2013 for construction, with a maximum throughput capacity of 3,400 pounds of bread per hour, and consisting of:

- (1) One (1) natural gas-fired muffin griddle, identified as Unit H, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack C; and
- (2) One (1) proof box, identified as Line H Proof Box.

- (e) One (1) muffin production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, muffin mixer (weigh scale) hopper, muffin mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, approved in 2013 for construction, with a maximum throughput of 693 pounds of flour per hour and 90 pounds of cornmeal per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, approved in 2013 for construction, identified as hopper M2, with a capacity of 693 pounds/hour, equipped with a fabric bag filter (RF3) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) bag breaker, approved in 2013 for construction, identified as breaker M2, with a capacity of 90 pounds/hour, exhausting indoors.
 - (3) One (1) mixer, approved in 2013 for construction, identified as mixer M2, with a capacity of 3,060 pounds/hour, exhausting to the weigh hopper.
 - (4) One (1) shaker, approved in 2013 for construction, identified as shaker M2, with a capacity of 90 pounds/hour (not including dough), equipped with a fabric filter (RF3) for corn meal recovery and reuse, exhausting indoors.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(j), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.
6. Pursuant to 326 IAC 2-7-10.5, this significant source modification authorizes the construction of the new emission units, when the source modification has been issued. Operating conditions shall be incorporated into the Part 70 Operating Permit in accordance with 326 IAC 2-7-10.5(m)(3). Operation is not approved until the Part 70 Operating Permit has been issued.

A copy of the permit is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

This decision is subject to the Indiana Administrative Orders and Procedures Act – IC 4-21.5-3-5.

If you have any questions on this matter, please contact Jason R. Krawczyk, OAQ, 100 North Senate Avenue, MC 61-53, Room 1003, Indianapolis, Indiana, 46204-2251, or call at (800) 451-6027, and ask for Mr. Krawczyk or extension (4-5174), or dial (317) 234-5174.

Sincerely,

DRAFT

Nathan C. Bell, Section Chief
Permits Branch
Office of Air Quality

Attachments:

Permit
Technical Support Document
PTE Calculations
BACT Analyses
Cost Analyses

JRK/NB

cc: File – Steuben County
Steuben County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch
Northern Regional Office

Tammy L. Endlish
Endlish Environmental & Energy LLC
503 Berkshire Court
Huron, OH 44839-1487



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Significant Source Modification to a Part 70 Source OFFICE OF AIR QUALITY

**New Horizons Baking Company
700 West Water Street
Fremont, Indiana 46737**

(herein known as the Permittee) is hereby authorized to construct subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Significant Source Modification No.: 151-32848-00060	
Issued by: Nathan C. Bell, Section Chief Permits Branch Office of Air Quality	Issuance Date:

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SOURCE SUMMARY

SECTION A

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.4 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(14)] [326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary bread baking plant.

Source Address:	700 West Water Street, Fremont, Indiana 46737
General Source Phone Number:	(260) 495-7055
SIC Code:	2051 (Bread and Other Bakery Products, Except Cookies and Crackers)
County Location:	Steuben
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) bun line, identified as Line A, constructed in 1979, with a maximum throughput capacity of 7,700 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired oven, identified as Unit A, with a maximum heat input of 4.60 MMBtu per hour, exhausting to Stack A; and
 - (2) One (1) proof box, identified as Line A Proof Box.
- (b) One (1) muffin line, identified as Line B, constructed in 1983 and modified in 2008, with a maximum throughput capacity of 3,400 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired muffin griddle, identified as Unit B, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack B; and
 - (2) One (1) proof box, identified as Line B Proof Box.
- (c) One (1) muffin line, identified as Line H, approved in 2013 for construction, with a maximum throughput capacity of 3,060 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired muffin griddle, identified as Unit H, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack H; and
 - (2) One (1) proof box, identified as Line H Proof Box.

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- (d) Two (2) flour storage silos, identified as Unit C1 and C2, each with a maximum storage capacity of 60 tons of flour and a throughput rate of 6,250 pounds of flour per hour plus twenty percent (20%) flour recovery, equipped with a pneumatic conveyance system, using fabric filters as control, constructed in 1979, and exhausting to Stacks C1 and C2, respectively.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) One (1) bun production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, bun mixer (weigh scale) hopper, bun mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, permitted in 1979, with a maximum throughput of 4,577 pounds of flour per hour. The conveyance system includes the following emission units:
 - (1) One (1) weigh hopper, installed in 1979, identified as hopper B1, with a capacity of 4,577 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) mixer, installed in 2010, identified as mixer B1, with a capacity of 7,700 pounds/hour, exhausting indoors.
 - (3) One (1) dusting hopper, installed in 1996, identified as hopper B2, with a capacity of 100 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (4) One (1) shaker, installed in 1996, identified as shaker B1, with a capacity of 100 pounds/hour (not including dough), equipped with a fabric filter (RF1) for flour recovery and reuse, exhausting indoors.
- (b) One (1) muffin production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, muffin mixer (weigh scale) hopper, muffin mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, permitted in 1983, with a maximum throughput of 770 pounds of flour per hour and 100 pounds of cornmeal per hour. The conveyance system includes the following emission units:
 - (1) One (1) weigh hopper, installed in 1983, identified as hopper M1, with a capacity of 770 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) bag breaker, installed in 1983, identified as breaker M1, with a capacity of 100 pounds/hour, exhausting indoors.
 - (3) One (1) mixer, installed in 1997, identified as mixer M1, with a capacity of 3,400 pounds/hour, exhausting to the weigh hopper.
 - (4) One (1) shaker, installed in 2011, identified as shaker M1, with a capacity of 100 pounds/hour (not including dough), equipped with a fabric filter (RF2) for corn meal recovery and reuse, exhausting indoors.

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- (c) One (1) muffin production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, muffin mixer (weigh scale) hopper, muffin mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, approved in 2013 for construction, with a maximum throughput of 693 pounds of flour per hour and 90 pounds of cornmeal per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, approved in 2013 for construction, identified as hopper M2, with a capacity of 693 pounds/hour, equipped with a fabric bag filter (RF3) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) bag breaker, approved in 2013 for construction, identified as breaker M2, with a capacity of 90 pounds/hour, exhausting indoors.
 - (3) One (1) mixer, approved in 2013 for construction, identified as mixer M2, with a capacity of 3,060 pounds/hour, exhausting to the weigh hopper.
 - (4) One (1) shaker, approved in 2013 for construction, identified as shaker M2, with a capacity of 90 pounds/hour (not including dough), equipped with a fabric filter (RF3) for corn meal recovery and reuse, exhausting indoors.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

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SECTION B

GENERAL CONDITIONS

B.1 Advanced Source Modification Approval [326 IAC 2-7-5(15)] [326 IAC 2-7-10.5]

Pursuant to 326 IAC 2-7-10.5(f)(3), the emission units specified in Section A.2 are hereby approved for construction.

B.2 Permit No Defense [IC 13-11 through 13-20] [IC 13-22 through 13-25]

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.3 Effective Date of the Permit [IC 13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.4 Revocation of Permits [326 IAC 2-1.1-9(5)] [326 IAC 2-7-10.5(j)]

Pursuant to 326 IAC 2-7-10.5(j), construction must commence within eighteen (18) months of the issuance of this approval.

B.5 Modification to Construction Conditions [326 IAC 2]

All requirements of these construction conditions shall remain in effect unless modified in a manner consistent with procedures established for revisions pursuant to 326 IAC 2.

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SECTION D.1

EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-7-5(14)]:

- (a) One (1) bun line, identified as Line A, constructed in 1979, with a maximum throughput capacity of 7,700 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired oven, identified as Unit A, with a maximum heat input of 4.60 MMBtu per hour, exhausting to Stack A; and
 - (2) One (1) proof box, identified as Line A Proof Box.
- (b) One (1) muffin line, identified as Line B, constructed in 1983 and modified in 2008, with a maximum throughput capacity of 3,400 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired muffin griddle, identified as Unit B, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack B; and
 - (2) One (1) proof box, identified as Line B Proof Box.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (BACT) and SSM 151-32848-00060, the best available control technology (BACT) has been determined to be the following for the muffin line (Line B):

- (a) VOC emissions from the muffin line, identified as Line B (consisting of the muffin griddle (Unit B) and the proof box (Line B Proof Box)), shall not exceed 35.16 tons per twelve (12) consecutive month period.
- (b) The source shall operate Line B (consisting of the muffin griddle (Unit B) and proof box (Line B Proof Box)) in accordance the manufacturer's design and operating specifications.
- (c) In order to ensure proper operation and to minimize potential emissions, the source shall perform proof box cleaning operations for the proof box (Line B Proof Box) and perform at a minimum, the following operations, or their equivalent, in accordance with their Sanitation Standard Operating Procedure:

Weekly Cleaning Procedure:

- (1) Clean inner housing top and bottom using a hand brush and knife scraper;
- (2) Clean inner conveyor shafts and bearing housings. Use a clean cloth for removal of residual debris and any bearing over lubrication;
- (3) Clean inner door ledge framework using a hand brush and clean cloth;
- (4) Wash inner housing;
- (5) Wash inner conveyor shafts and bearing housings;
- (6) Wash inner door ledge framework;
- (7) Clean debris from lower proofer doors using a hand brush and clean cloth. If there are problem areas on the doors, a knife scraper can be used to remove encrusted debris.
- (8) Wash lower proofer doors.

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D.1.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for the bun line (Line A) and muffin griddle (Line B) facilities. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements

D.1.3 Volatile Organic Compounds

Compliance with the VOC limit contained in Condition D.1.1(a) shall be determined by the following equation:

$$\text{VOC} = \sum_{m=1}^{12} \left(\left(\frac{(E_f + 1) * D}{2000 \text{ lbs / ton}} \right) + 0.007 \right)_m$$

Where:

- D = The amount of baked product produced during month m (tons/month);
E_f = The VOC emission factor (lb of VOC/ton of baked product);
m = The compliance period is one (1) calendar month.

The Permittee shall use 3.71 lbs VOC/ton for the emission factor (E_f), or the emission factor determined from a valid compliance demonstration, as required by Condition D.1.5, which results in an emission factor higher than 3.71 lbs VOC/ton.

D.1.4 Testing Requirements

Not later than 60 days after a change in the dough formulation of the muffins, which is expected to result in an increase of VOC emissions, the Permittee shall perform VOC testing of the one (1) muffin griddle, identified as Unit B, utilizing methods approved by the commissioner. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.5 Record Keeping Requirements

- (a) To document the compliance status with Conditions D.1.1(a) and D.1.3, the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC emission limit established in Condition D.1.1(a).
- (1) The dates of the compliance period;
 - (2) The amount of baked product produced during each compliance period;
 - (3) The VOC emission factor used (lb of VOC/ton of baked product); and
 - (4) The weight of VOCs emitted for each month and each compliance period.
- (b) To document the compliance status with Condition D.1.1(c), the Permittee shall maintain records of the cleaning operations for the proof box (Line B Proof Box). The Permittee shall include in its record when a cleaning operation was not performed and the reason for the lack of cleaning operations.

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- (c) Section C - General Record Keeping Requirements, of this permit contains the Permittee's obligations with regard to the records required by this condition.

D.1.6 Reporting Requirements

A quarterly summary of the information to document the compliance status with Conditions D.1.1(a) and D.1.3 shall be submitted using the reporting form located at the end of this permit, or its equivalent, not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official," as defined by 326 IAC 2-7-1(34).

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SECTION D.2

EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-7-5(14)]:

- (c) One (1) muffin line, identified as Line H, approved in 2013 for construction, with a maximum throughput capacity of 3,060 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired muffin griddle, identified as Unit H, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack H; and
 - (2) One (1) proof box, identified as Line H Proof Box.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

Pursuant to 326 IAC 8-1-6 (BACT) and SSM 151-32848-00060, the best available control technology (BACT) has been determined to be the following for the muffin line (Line H):

- (a) VOC emissions from the muffin line, identified as Line H (consisting of the muffin griddle (Unit H) and the proof box (Line H Proof Box)), shall not exceed 31.65 tons per twelve (12) consecutive month period.
- (b) The source shall operate Line H (consisting of the muffin griddle (Unit H) and proof box (Line H Proof Box)) in accordance the manufacturer's design and operating specifications.
- (c) In order to ensure proper operation and to minimize potential emissions, the source shall perform proof box cleaning operations for the proof box (Line H Proof Box) and perform at a minimum, the following operations, or their equivalent, in accordance with their Sanitation Standard Operating Procedure:

Weekly Cleaning Procedure:

- (1) Clean inner housing top and bottom using a hand brush and knife scraper;
- (2) Clean inner conveyor shafts and bearing housings. Use a clean cloth for removal of residual debris and any bearing over lubrication;
- (3) Clean inner door ledge framework using a hand brush and clean cloth;
- (4) Wash inner housing;
- (5) Wash inner conveyor shafts and bearing housings;
- (6) Wash inner door ledge framework;
- (7) Clean debris from lower proofer doors using a hand brush and clean cloth. If there are problem areas on the doors, a knife scraper can be used to remove encrusted debris.
- (8) Wash lower proofer doors.

D.2.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for the muffin griddle (Unit H) and the proof box (Line H Proof Box). Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

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Compliance Determination Requirements

D.2.3 Volatile Organic Compounds

Compliance with the VOC limit contained in Condition D.2.1(a) shall be determined by the following equation:

$$\text{VOC} = \sum_{m=1}^{12} \left(\left(\frac{(E_f + 1) * D}{2000 \text{ lbs / ton}} \right) + 0.007 \right)_m$$

Where:

- D = The amount of baked product produced during month m (tons/month);
E_f = The VOC emission factor (lb of VOC/ton of baked product);
m = The compliance period is one (1) calendar month.

The Permittee shall use 3.71 lbs VOC/ton for the emission factor (E_f), or the emission factor determined from a valid compliance demonstration, as required by Condition D.2.5, which results in an emission factor higher than 3.71 lbs VOC/ton.

D.2.4 Testing Requirements

Not later than 60 days after a change in the dough formulation of the muffins, which is expected to result in an increase of VOC emissions, the Permittee shall perform VOC testing of the one (1) muffin griddle, identified as Unit H, utilizing methods approved by the commissioner. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.5 Record Keeping Requirements

- (a) To document the compliance status with Conditions D.2.1(a) and D.2.3, the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC emission limit established in Condition D.2.1(a).
- (1) The dates of the compliance period;
 - (2) The amount of baked product produced during each compliance period;
 - (3) The VOC emission factor used (lb of VOC/ton of baked product); and
 - (4) The weight of VOCs emitted for each month and each compliance period.
- (b) To document the compliance status with Condition D.2.1(c), the Permittee shall maintain records of the cleaning operations for the proof box (Line H Proof Box). The Permittee shall include in its record when a cleaning operation was not performed and the reason for the lack of cleaning operations.
- (c) Section C - General Record Keeping Requirements, of this permit contains the Permittee's obligations with regard to the records required by this condition.

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D.2.6 Reporting Requirements

A quarterly summary of the information to document the compliance status with Conditions D.2.1(a) and D.2.3 shall be submitted using the reporting form located at the end of this permit, or its equivalent, not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official," as defined by 326 IAC 2-7-1(34).

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SECTION D.3

EMISSIONS UNIT OPERATION CONDITIONS

Emission Unit Description [326 IAC 2-7-5(14)]:

- (d) Two (2) flour storage silos, identified as Unit C1 and C2, each with a maximum storage capacity of 60 tons of flour and a throughput rate of 6,250 pounds of flour per hour plus twenty percent (20%) flour recovery, equipped with a pneumatic conveyance system, using fabric filters as control, constructed in 1979, and exhausting to Stacks C1 and C2, respectively.

Insignificant Activities:

- (a) One (1) bun production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, bun mixer (weigh scale) hopper, bun mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, permitted in 1979, with a maximum throughput of 4,577 pounds of flour per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, installed in 1979, identified as hopper B1, with a capacity of 4,577 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) mixer, installed in 2010, identified as mixer B1, with a capacity of 7,700 pounds/hour, exhausting indoors.
 - (3) One (1) dusting hopper, installed in 1996, identified as hopper B2, with a capacity of 100 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (4) One (1) shaker, installed in 1996, identified as shaker B1, with a capacity of 100 pounds/hour (not including dough), equipped with a fabric filter (RF1) for flour recovery and reuse, exhausting indoors.
- (b) One (1) muffin production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, muffin mixer (weigh scale) hopper, muffin mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, permitted in 1983, with a maximum throughput of 770 pounds of flour per hour and 100 pounds of cornmeal per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, installed in 1983, identified as hopper M1, with a capacity of 770 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) bag breaker, installed in 1983, identified as breaker M1, with a capacity of 100 pounds/hour, exhausting indoors.
 - (3) One (1) mixer, installed in 1997, identified as mixer M1, with a capacity of 3,400 pounds/hour, exhausting to the weigh hopper.
 - (4) One (1) shaker, installed in 2011, identified as shaker M1, with a capacity of 100 pounds/hour (not including dough), equipped with a fabric filter (RF2) for corn meal recovery and reuse, exhausting indoors.

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- (c) One (1) muffin production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, muffin mixer (weigh scale) hopper, muffin mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, approved in 2013 for construction, with a maximum throughput of 693 pounds of flour per hour and 90 pounds of cornmeal per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, approved in 2013 for construction, identified as hopper M2, with a capacity of 693 pounds/hour, equipped with a fabric bag filter (RF3) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) bag breaker, approved in 2013 for construction, identified as breaker M2, with a capacity of 90 pounds/hour, exhausting indoors.
 - (3) One (1) mixer, approved in 2013 for construction, identified as mixer M2, with a capacity of 3,060 pounds/hour, exhausting to the weigh hopper.
 - (4) One (1) shaker, approved in 2013 for construction, identified as shaker M2, with a capacity of 90 pounds/hour (not including dough), equipped with a fabric filter (RF3) for corn meal recovery and reuse, exhausting indoors.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 Particulate [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emissions from the flour storage silos, weigh hoppers, mixer, dusting hopper, shakers, and bag breaker, shall each not exceed the following:

Emission Unit	Process Weight Rate (P) (tons/hr)	PM Emission Rate (E) (lb/hr)
Silo C1	3.57	9.618
Silo C2	3.57	9.618
Mixer B1	3.85	10.117
Mixer M1	1.70	5.850
Mixer M2	1.53	5.452

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

D.3.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their associated control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

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Compliance Determination Requirements

D.3.3 Particulate Control

In order to comply with Condition D.3.1, the fabric filters used for particulate control shall be in operation and control emissions from the two (2) flour storage silos at all times when the two (2) flour storage silos are in operation.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.3.4 Visible Emissions Notations

- (a) Visible emission notations of the stack exhaust C-1 and C-2 shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take a reasonable response. Section C – Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

Record Keeping and Reporting [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.3.5 Record Keeping Requirements

- (a) To document the compliance status with Condition D.3.4, the Permittee shall maintain daily records of the visible emission notations of each stack exhaust. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of a notation (e.g., the process did not operate that day).
- (b) Section C - General Record Keeping Requirements, of this permit contains the Permittee's obligations with regard to the records required by this condition.

DRAFT
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
CERTIFICATION

Source Name: New Horizons Baking Company
Source Address: 700 West Water Street, Fremont, Indiana 46737
Significant Source Modification No.: 151-32848-00060

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

- ☐ Annual Compliance Certification Letter
- ☐ Test Result (specify): _____
- ☐ Report (specify): _____
- ☐ Notification (specify): _____
- ☐ Affidavit (specify): _____
- ☐ Other (specify): _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Phone:

Date:

DRAFT

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: (317) 233-0178
Fax: (317) 233-6865**

**PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT**

Source Name: New Horizons Baking Company
Source Address: 700 West Water Street, Fremont, Indiana 46737
Significant Source Modification No.: 151-32848-00060

This form consists of 2 pages

Page 1 of 2

- ☐ This is an emergency as defined in 326 IAC 2-7-1(12)

 - The Permittee must notify the Office of Air Quality (OAQ), no later than four (4) daytime business hours (1-800-451-6027 or 317-233-0178, ask for Compliance and Enforcement Branch); and
 - The Permittee must submit notice in writing or by facsimile no later than two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:

Control Equipment:

Permit Condition or Operation Limitation in Permit:

Description of the Emergency

Describe the cause of the Emergency

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If any of the following are not applicable, mark N/A

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? <input type="checkbox"/> Y <input type="checkbox"/> N Describe:
Type of Pollutants Emitted: <input type="checkbox"/> TSP <input type="checkbox"/> PM-10 <input type="checkbox"/> SO ₂ <input type="checkbox"/> VOC <input type="checkbox"/> NO _x <input type="checkbox"/> CO <input type="checkbox"/> Pb <input type="checkbox"/> other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

DRAFT
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance and Enforcement Branch

Part 70 Quarterly Report

Source Name: New Horizons Baking Company
Source Address: 700 West Water Street, Fremont, Indiana 46737
Significant Source Modification No.: 151-32848-00060
Facility: Muffin Line (Line B)
Parameter: Volatile Organic Compounds (VOCs)
Limit: 35.16 tons per year, according to the equation:

$$VOC = \sum_{m=1}^{12} \left(\left(\frac{(E_f + 1) * D}{2000 lbs / ton} \right) + 0.007 \right)_m$$

Where:

- D = The amount of baked product produced during month m (tons/month);
E_f = The VOC emission factor (lb of VOC/ton of baked product);
m = The compliance period is one (1) calendar month.

QUARTER: _____ **YEAR:** _____

Month	VOC Emissions (tons)	VOC Emissions (tons)	VOC Emissions (tons)
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviations occurred in this quarter.
Deviation has been reported on: _____

Submitted By: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

DRAFT
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance and Enforcement Branch

Part 70 Quarterly Report

Source Name: New Horizons Baking Company
Source Address: 700 West Water Street, Fremont, Indiana 46737
Significant Source Modification No.: 151-32848-00060
Facility: Muffin Line (Line H)
Parameter: Volatile Organic Compounds (VOCs)
Limit: 31.65 tons per year, according to the equation:

$$VOC = \sum_{m=1}^{12} \left(\left(\frac{(E_f + 1) * D}{2000 lbs / ton} \right) + 0.007 \right)_m$$

Where:

- D = The amount of baked product produced during month m (tons/month);
E_f = The VOC emission factor (lb of VOC/ton of baked product);
m = The compliance period is one (1) calendar month.

QUARTER: _____ **YEAR:** _____

Month	VOC Emissions (tons)	VOC Emissions (tons)	VOC Emissions (tons)
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviations occurred in this quarter.
Deviation has been reported on: _____

Submitted By: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

DRAFT

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: New Horizons Baking Company
Source Address: 700 West Water Street, Fremont, Indiana 46737
Significant Source Modification No.: 151-32848-00060

Months: _____ to _____ Year: _____

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C- General Reporting. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

Permit Requirement (specify permit condition #)

Date of Deviation:

Date of Deviation:

Number of Deviations:

Probable Cause of Deviation:

Response Steps Taken:

Permit Requirement (specify permit condition #)

Date of Deviation:

Date of Deviation:

Number of Deviations:

Probable Cause of Deviation:

Response Steps Taken:

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Page 2 of 2

Permit Requirement (specify permit condition #)	
Date of Deviation:	Date of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Date of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Date of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Significant Source Modification and Part 70 Operating Permit

Source Background and Description

Source Name:	New Horizons Baking Company
Source Location:	700 W. Water Street, Fremont, IN 46737
County:	Steuben
SIC Code:	2051 (Bread and Other Bakery Products, Except Cookies and Crackers)
Significant Source Modification No.:	151-32848-00060
Part 70 Operating Permit No.:	T151-31292-00060
Permit Reviewer:	Jason R. Krawczyk

The Office of Air Quality (OAQ) has reviewed applications from New Horizons Baking Company relating to the transition of a Minor Source Operating Permit (MSOP) to a Part 70 Operating Permit.

On December 21, 2011, the New Horizons Baking Company submitted an application to the OAQ requesting to transition from its existing MSOP to a Part 70 Operating Permit. The New Horizons Baking Company was issued their first MSOP Renewal (M151-26750-00060) on November 17, 2008.

On September 28, 2012, New Horizons Baking Company submitted an application to update emission units for the Bun Line (Line A) and Muffin Line (Line B), to incorporate VOC emissions from proofing, and to update the VOC emission factor for Line B based on stack testing performed November 2010.

On February 19, 2013, New Horizons Baking Company submitted an application to construct and operate a new muffin line (Line H).

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units:

- (a) One (1) bun line, identified as Line A, constructed in 1979, with a maximum throughput capacity of 7,700 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired oven, identified as Unit A, with a maximum heat input of 4.60 MMBtu per hour, exhausting to Stack A; and
 - (2) One (1) proof box, identified as Line A Proof Box.

Note: Although previously included in the permit, the source did not provide the potential to emit of the proof box when it was added in MSOP Minor Permit Revision 151-28993-00060, issued May 10, 2010. Based on the PTE, the source did not obtain the proper construction or operation approval for the Line A Proof Box.
- (b) One (1) muffin line, identified as Line B, constructed in 1983 and modified in 2008, with a maximum throughput capacity of 3,400 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired muffin griddle, identified as Unit B, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack B; and

- (2) One (1) proof box, identified as Line B Proof Box.

Note: Although previously included in the permit, the source did not provide the potential to emit of the proof box when it was added in MSOP Minor Permit Revision 151-28993-00060, issued May 10, 2010. Based on the PTE, the source did not obtain the proper construction or operation approval for the Line B Proof Box.

- (c) Two (2) flour storage silos, identified as Unit C1 and C2, each with a maximum storage capacity of 60 tons of flour and a throughput rate of 6,250 pounds of flour per hour plus twenty percent (20%) flour recovery, equipped with a pneumatic conveyance system, using fabric filters as control, constructed in 1979, and exhausting to Stacks C1 and C2, respectively.

Emission Units and Pollution Control Equipment Constructed and/or Operated without a Permit
--

The source also consists of the following emission units that were constructed and are operating without a proper permit:

- (a) One (1) dough mixer, installed in 2010, identified as mixer B1, with a capacity of 7,700 pounds/hour, exhausting indoors.
- (b) One (1) proof box, identified as Line A Proof Box.
- (c) One (1) proof box, identified as Line B Proof Box.

Emission Units and Pollution Control Equipment Removed From the Source

The source has not removed any emission units.

Insignificant Activities

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) Combustion related activities, including the following:
- (1) Space heaters, process heaters, heat treat furnaces, or boilers using the following fuels:
- (A) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) British thermal units per hour.
- (i) One (1) natural gas-fired Hurst boiler, identified as Unit D, constructed in 1979, with a maximum heat input capacity of 2.60 MMBtu per hour, and exhausting at Stack D.
- (ii) One (1) natural gas-fired Kewanee boiler, identified as Unit E, constructed in 1996, with a maximum heat input capacity of 1.80 MMBtu per hour, and exhausting at Stack E.
- (iii) Six (6) natural gas-fired space heaters, identified as F1 through F6, each with a maximum heat input of 0.10 MMBtu per hour, and installed in 1979.
- (iv) Two (2) natural gas-fired space heaters, identified as F7 through F8, each with a maximum heat input of 0.10 MMBtu per hour, both installed in 1979.

- (v) Four (4) natural gas-fired space heaters, identified as F9 through F12, each with a maximum heat input of 0.10 MMBtu per hour, each installed in 2004.

(b) The following VOC and HAP storage containers:

- (1) Storage tanks with capacity less than or equal to one thousand (1,000) gallons and annual throughputs equal to or less than twelve thousand (12,000) gallons:
 - (A) One (1) 50-gallon hydraulic oil tank, identified as HD-1 Oven, constructed in 1979;
 - (B) One (1) 35-gallon hydraulic oil tank, identified as HD-2 Developer, constructed in 1978;
 - (C) One (1) 15-gallon oil tank, identified as GL-1 Griddle, constructed in 2009;
 - (D) One (1) 1-gallon lube oil tank, identified as PRO-1 Proofer, constructed in 1996;
 - (E) One (1) 1-gallon HT2000 storage tank, identified as Oven-1, constructed in 1989;
 - (F) One (1) 10-gallon solvent storage tank, identified as Maintenance Solvent 1, constructed in 1984;
 - (G) One (1) 1-gallon Volcool VNT700 storage tank, identified as Water Soluble, constructed in 1985; and
 - (H) One (1) 55-gallon lube oil tank, identified as K-Lub, constructed in 1984.

(c) Production related activities, including the following:

- (1) Degreasing operations that do not exceed one hundred forty-five (145) gallons per twelve (12) months, except if subject to 326 IAC 20-6.
 - (A) One (1) cold cleaning degreasing operation with a remote reservoir, constructed in 2002. [326 IAC 8-3]
- (2) Cleaners and solvents characterized as:
 - (A) having a vapor pressure equal to or less than two (2.0) kilo Pascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pound per square inch) measured at thirty-eight (38) degrees Centigrade (one hundred (100) degrees Fahrenheit); or
 - (B) having a vapor pressure equal to or less than seven-tenths (0.7) kilo Pascal (five (5) millimeters of mercury or one-tenth (0.1) pound per square inch) measured at twenty (20) degrees Centigrade (sixty-eight (68) degrees Fahrenheit);

the use of which, for all cleaners and solvents combined, does not exceed one hundred forty-five (145) gallons per twelve (12) months.

- (d) One (1) bun production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, bun mixer (weigh scale) hopper, bun mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, permitted in 1979, with a maximum throughput of 4,577 pounds of flour per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, installed in 1979, identified as hopper B1, with a capacity of 4,577 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) dough mixer, installed in 2010, identified as mixer B1, with a capacity of 7,700 pounds/hour, exhausting indoors.
 - (3) One (1) dusting hopper, installed in 1996, identified as hopper B2, with a capacity of 100 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (4) One (1) shaker, installed in 1996, identified as shaker B1, with a capacity of 100 pounds/hour (not including dough), equipped with a fabric filter (RF1) for flour recovery and reuse, exhausting indoors.
- (e) One (1) muffin production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, muffin mixer (weigh scale) hopper, muffin mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, permitted in 1983, with a maximum throughput of 770 pounds of flour per hour and 100 pounds of cornmeal per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, installed in 1983, identified as hopper M1, with a capacity of 770 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) bag breaker, installed in 1983, identified as breaker M1, with a capacity of 100 pounds/hour, exhausting indoors.
 - (3) One (1) mixer, installed in 1997, identified as mixer M1, with a capacity of 3,400 pounds/hour, exhausting to the weigh hopper.
 - (4) One (1) shaker, installed in 2011, identified as shaker M1, with a capacity of 100 pounds/hour (not including dough), equipped with a fabric filter (RF2) for corn meal recovery and reuse, exhausting indoors.
- (f) Paved and roads and parking lots with public access.
- (g) Activities associated with emergencies, including the following:
- (1) One (1) 5.36 HP natural gas-fired emergency generator, identified as Unit G, constructed in 1983, and exhausting to Stack G.

Under NESHAP ZZZZ, this unit is considered an affected emission unit.

This stationary source also includes the following insignificant activities which are not specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) Production related activities, including the following:

- (1) Application of:
 - (A) oils;
 - (B) greases; and
 - (C) lubricantsas temporary protective coatings.
- (2) Machining where an aqueous cutting coolant continuously floods the machining interface.
- (3) Maintenance welding.
- (4) Closed loop heating and cooling systems.
- (b) Solvent recycling systems with batch capacity less than or equal to one hundred (100) gallons.
- (c) Water based activities, including the following:
 - (1) Activities associated with the treatment of wastewater streams with an oil and grease content less than or equal to one percent (1%) by volume.
 - (2) Noncontact cooling tower systems with either of the following:
 - (A) Forced and induced draft cooling tower systems not regulated under a NESHAP.Oil, grease, or VOC content shall be determined by a test method acceptable to the department and the U.S. EPA.
- (d) Repair activities, including the following:
 - (1) Replacement or repair of electrostatic precipitators, bags in baghouses, and filters in other air filtration equipment.
- (e) Blowdown for the following:
 - (1) Boiler.
 - (2) Cooling tower.
 - (3) Compressors.

Existing Approvals

Since the issuance of the Minor Source Operating Permit Renewal No. M151-26750-00060 on November 17, 2008, the source has constructed or has been operating under the following additional approvals:

Minor Permit Revision No. 151-28993-00060 issued on May 10, 2010.

All terms and conditions of previous permits issued pursuant to permitting programs approved into the State Implementation Plan have been either incorporated as originally stated, revised, or deleted by this permit. All previous registrations and permits are superseded by this permit.

Enforcement Issue

IDEM is aware that equipment has been constructed and operated prior to receipt of the proper permit. The subject equipment is listed in this Technical Support Document under the condition entitled "Emission Units and Pollution Control Equipment Constructed and/or Operated without a Permit". IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

IDEM, OAQ has recently been incorporating VOC emissions from proof boxes into a facility's potential to emit summary and considering a proof box and oven to be one facility with VOC emissions from proofing assumed to be 10% of the emissions calculated for fermentation.

Summary of Proposed Modification

The Office of Air Quality (OAQ) has reviewed applications, submitted by New Horizons Baking Company on September 28, 2012 and February 19, 2013, relating to:

- 1) The removal of a VOC Minor Limit, addition of emissions from the proof boxes and ingredient handling associated with the Bun Line (Line A) and Muffin Line (Line B);
- 2) The incorporation of Best Available Control Technology for the Muffin Line (Line B); and
- 3) The addition of new Muffin Line (Line H).

The following is a list of the modified emission units:

- (a) One (1) bun line, identified as Line A, constructed in 1979, with a maximum throughput capacity of 7,700 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired oven, identified as Unit A, with a maximum heat input of 4.60 MMBtu per hour, exhausting to Stack A; and
 - (2) One (1) proof box, identified as Line A Proof Box.
- (b) One (1) muffin line, identified as Line B, constructed in 1983 and modified in 2008, with a maximum throughput capacity of 3,400 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired muffin griddle, identified as Unit B, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack B; and
 - (2) One (1) proof box, identified as Line B Proof Box.

The following is a list of the new emission units:

- (a) One (1) muffin line, identified as Line H, approved in 2013 for construction, with a maximum throughput capacity of 3,060 pounds of bread per hour, and consisting of:
 - (1) One (1) natural gas-fired muffin griddle, identified as Unit H, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack C; and
 - (2) One (1) proof box, identified as Line H Proof Box.

- (b) One (1) muffin production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, muffin mixer (weigh scale) hopper, muffin mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, approved in 2013 for construction, with a maximum throughput of 693 pounds of flour per hour and 90 pounds of cornmeal per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, approved in 2013 for construction, identified as hopper M2, with a capacity of 693 pounds/hour, equipped with a fabric bag filter (RF3) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) bag breaker, approved in 2013 for construction, identified as breaker M2, with a capacity of 90 pounds/hour, exhausting indoors.
 - (3) One (1) mixer, approved in 2013 for construction, identified as mixer M2, with a capacity of 3,060 pounds/hour, exhausting to the weigh hopper.
 - (4) One (1) shaker, approved in 2013 for construction, identified as shaker M2, with a capacity of 90 pounds/hour (not including dough), equipped with a fabric filter (RF3) for corn meal recovery and reuse, exhausting indoors.

The following emission units were not previously specifically identified in the permit; however, they were generically identified as part of the pneumatic conveyance systems associated with the flour storage silos for the bun and muffin lines:

- (a) One (1) bun production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, bun mixer (weigh scale) hopper, bun mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, permitted in 1979, with a maximum throughput of 4,577 pounds of flour per hour. The conveyance system includes the following emission units:
- (1) One (1) weigh hopper, installed in 1979, identified as hopper B1, with a capacity of 4,577 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (2) One (1) dough mixer, installed in 2010, identified as mixer B1, with a capacity of 7,700 pounds/hour, exhausting indoors.
 - (3) One (1) dusting hopper, installed in 1996, identified as hopper B2, with a capacity of 100 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
 - (4) One (1) shaker, installed in 1996, identified as shaker B1, with a capacity of 100 pounds/hour (not including dough), equipped with a fabric filter (RF1) for flour recovery and reuse, exhausting indoors.
- (b) One (1) muffin production line, including, but not limited to, pneumatic dry ingredient conveyance process equipment and piping, liquid ingredient conveyance process equipment and piping, dough conveyance system, use bins, muffin mixer (weigh scale) hopper, muffin mixer, transfer equipment, other process equipment and piping, and associated dry ingredient recovery baghouse, permitted in 1983, with a maximum throughput of 770 pounds of flour per hour and 100 pounds of cornmeal per hour. The conveyance system includes the following emission units:

- (1) One (1) weigh hopper, installed in 1983, identified as hopper M1, with a capacity of 770 pounds/hour, equipped with a fabric bag filter (RF1) for flour recovery and reuse, exhausting indoors.
- (2) One (1) bag breaker, installed in 1983, identified as breaker M1, with a capacity of 100 pounds/hour, exhausting indoors.
- (3) One (1) mixer, installed in 1997, identified as mixer M1, with a capacity of 3,400 pounds/hour, exhausting to the weigh hopper.
- (4) One (1) shaker, installed in 2011, identified as shaker M1, with a capacity of 100 pounds/hour (not including dough), equipped with a fabric filter (RF2) for corn meal recovery and reuse, exhausting indoors.

Emission Calculations

See Appendix A of this document for detailed emission calculations.

County Attainment Status

The source is located in Steuben County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Unclassifiable or attainment effective June 15, 2004, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.
¹ Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005. Unclassifiable or attainment effective April 5, 2005, for PM _{2.5} .	

- (a) **Ozone Standards**
 Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Steuben County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) **PM_{2.5}**
 Steuben County has been classified as attainment for PM_{2.5}. On May 8, 2008, U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM_{2.5} emissions. These rules became effective on July 15, 2008. On May 4, 2011 the air pollution control board issued an emergency rule establishing the direct PM_{2.5} significant level at ten (10) tons per year. This rule became effective, June 28, 2011.. Therefore, direct PM_{2.5} and SO₂ emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.
- (c) **Other Criteria Pollutants**
 Steuben County has been classified as attainment or unclassifiable in Indiana for SO₂, CO, PM₁₀, NO₂, and lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7, and there is no applicable New Source Performance Standard that was in effect on August 7, 1980, fugitive emissions are not counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Unrestricted Potential Emissions	
Pollutant	Tons/year
PM	121.10
PM ₁₀	41.59
PM _{2.5}	41.59
SO ₂	0.05
VOC	146.19
CO	6.35
NO _x	7.56
GHGs as CO ₂ e	9,125
HAP Acetaldehyde	4.37
Total HAP	4.51

Appendix A of this TSD reflects the unrestricted potential emissions of the source.

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of VOC is equal to or greater than 100 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7 and will be issued a Part 70 Operating Permit.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of GHGs is less than one hundred thousand (100,000) tons of CO₂ equivalent emissions (CO₂e) per year.
- (c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is equal to or greater than twenty-five (25) tons per year.

Actual Emissions

No previous emission data has been received from the source.

Part 70 Permit Conditions

This source is subject to the requirements of 326 IAC 2-7, because the source met the following:

- (a) Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of issuance of Part 70 permits.
- (b) Monitoring and related record keeping requirements which assume that all reasonable information is provided to evaluate continuous compliance with the applicable requirements.

Permit Level Determination – Part 70

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emission unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, IDEM, or the appropriate local air pollution control agency.”

The following table is used to determine the appropriate permit level under 326 IAC 2-7-10.5. This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Increase in PTE Before Controls of the Modification	
Pollutant	Potential To Emit (ton/yr)
PM	39.16
PM ₁₀	12.47
PM _{2.5}	12.47
SO ₂	0.01
NO _x	1.59
VOC	55.96
CO	1.33
GHGs as CO ₂ e	6,221
Single HAP (Acetaldehyde)	1.68
Total HAPs	1.71

Appendix A of this TSD reflects the unrestricted potential emissions of the modification.

These changes require a source modification under 326 IAC 2-7-10.5 because the potential to emit before consideration of controls is greater than the levels outlined in 326 IAC 2-1.1-3(e)(1).

In addition, this source modification is subject to 326 IAC 2-7-10.5(g) because the modification is subject to 326 IAC 8-1-6.

Permit Level Determination - PSD

The table below summarizes the potential to emit, reflecting all limits, of the emission units and potential emissions that were added to the permit or modified as part of this modification. Any new control equipment is considered federally enforceable only after issuance of this Part 70 Operating Permit, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process / Emission Unit	Potential To Emit of Modification (tons/year)									
	PM	PM ₁₀ *	PM _{2.5} *	SO ₂	NO _x	VOC	CO	GHGs	Total HAPs	Single HAP (Acet.)
Bun Line (Line A)										
Proof Box	-	-	-	-	-	16.86	-	-	0.51	0.51
Combustion	-	-	-	-	-	-	-	2,385	-	-
Muffin Line (Line B)										
Proof Box	-	-	-	-	-	7.45	-	-	0.22	0.22
Combustion	-	-	-	-	-	-	-	1,918	-	-
Muffin Line (Line H)										
Griddle	-	-	-	-	-	24.86	-	-	0.75	0.75
Proof Box	-	-	-	-	-	6.70	-	-	0.20	0.20
Combustion	0.03	0.12	0.12	0.01	1.59	0.09	1.33	1,918	0.03	-
Silo Loading ¹	21.32	7.47	7.47	-	-	-	-	-	-	-
Bun Line (Line A) Ingredient Handling	9.70	2.66	2.66	-	-	-	-	-	-	-
Muffin Line (Line B) Ingredient Handling	4.27	1.17	1.17	-	-	-	-	-	-	-
Muffin Line (Line H) Ingredient Handling	3.84	1.05	1.05	-	-	-	-	-	-	-
Total PTE of Modification	39.16	12.47	12.47	0.01	1.59	55.96	1.33	6,221	1.71	1.68
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100,000 CO ₂ e	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000 CO ₂ e	NA	NA
<p>*Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀), not particulate matter (PM), is considered as a "regulated air pollutant".</p> <p>**PM_{2.5} listed is direct PM_{2.5}.</p> <p>1. The emissions increase at the Silo Loading is due to the inclusion of the flour recovery process that was previously not calculated.</p> <p>Acet. = Acetaldehyde</p>										

This modification to an existing minor stationary source is not major because the emissions increase is less than the PSD major source thresholds. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Potential to Emit of the Entire Source After Issuance

Entire Source

The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any new control equipment is considered federally enforceable only after issuance of this Part 70 Operating Permit, and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process / Emission Unit	Potential To Emit of the Entire Source After Issuance of the Part 70 Operating Permit (tons/year)									
	PM	PM ₁₀ [*]	PM _{2.5} ^{**}	SO ₂	NO _x	VOC	CO	GHGs	Total HAPs	Single HAP (Acet.)
Bun Line (Line A)										
Oven	-	-	-	-	-	62.15	-	-	1.86	1.86
Proof Box	-	-	-	-	-	16.86	-	-	0.51	0.51
Combustion	0.04	0.15	0.15	0.01	1.98	0.11	1.66	2,385	0.04	-
Muffin Line (Line B)										
Griddle	-	-	-	-	-	35.16	-	-	0.83	0.83
Proof Box	-	-	-	-	-		-	-	0.22	0.22
Combustion	0.03	0.12	0.12	0.01	1.59		1.33	1,918	0.03	-
Muffin Line (Line H)										
Griddle	-	-	-	-	-	31.65	-	-	0.75	0.75
Proof Box	-	-	-	-	-		-	-	0.20	0.20
Combustion	0.03	0.12	0.12	0.01	1.59		1.33	1,918	0.03	-
Bun Line (Line A) Ingredient Handling	9.70	2.66	2.66	-	-	-	-	-	-	-
Muffin Line (Line B) Ingredient Handling	4.27	1.17	1.17	-	-	-	-	-	-	-
Muffin Line (Line H) Ingredient Handling	3.84	1.05	1.05	-	-	-	-	-	-	-
Silo Loading	103.15	36.14	36.17							
Boilers (D &E)	3.6E-02	0.14	0.14	1.1E-02	1.89	0.10	1.59	2,281	3.6E-02	-
Heaters (F1 - F12)	9.8E-03	3.9E-02	3.9E-02	3.1E-03	5.2E-01	2.8E-02	0.43	622.12	9.7E-03	-
Emergency Generator (Unit G)	3.4E-05	2.6E-07	2.6E-07	2.0E-06	2.9E-03	5.0E-03	1.9E-03	0.47	2.4E-04	2.9E-05
VOC Storage Tanks	-	-	-	-	-	0.02	-	-	-	-
Insignificant Activities	-	-	-	-	-	0.11	-	-	-	-
Paved Roads (Fugitive)	0.19	3.8E-02	9.4E-03	-	-	-	-	-	-	-
Total PTE of Entire Source	121.10	41.59	41.59	0.05	7.56	146.19	6.35	9,125	4.51	4.37
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100,000 CO ₂ e	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000 CO ₂ e	NA	NA
*Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant".										
**PM _{2.5} listed is direct PM _{2.5} .										
Acet. = Acetaldehyde										

This existing stationary source is not major for PSD because the emissions of each regulated pollutant, excluding GHGs, are less than two hundred fifty (<250) tons per year, emissions of GHGs are less than one hundred thousand (<100,000) tons of CO₂ equivalent emissions (CO₂e) per year, and it is not in one of the twenty-eight (28) listed source categories.

Federal Rule Applicability

New Source Performance Standards (NSPS)

- (a) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc (326 IAC 12), are not included in the permit, since the natural gas-fired Hurst and Kewanee Boilers (Unit D and Unit E) have maximum heat capacities less than 10 MMBtu per hour, each.

- (b) The requirements of the New Source Performance Standard for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978, 40 CFR 60, Subpart K (326 IAC 12), are not included in the permit for storage tank HD-2 Developer, because it has a storage capacity less than 151,412 liters (40,000 gallons).
- (c) The requirements of the New Source Performance Standard for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984, 40 CFR 60, Subpart Ka (326 IAC 12), are not included in the permit for the HD-1 Oven, Maintenance Solvent 1, and K-Lub tanks, because they have capacities less than 151,416 liters (40,000 gallons).
- (d) The requirements of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, 40 CFR 60, Subpart Kb (326 IAC 12), are not included in the permit since none of the VOL storage vessels that were constructed after July 23, 1984, has a capacity greater than 75 cubic meters (m³) (19,813 gallons).
- (e) The requirements of the New Source Performance Standard for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart IIII (326 IAC 12), are not included in the permit for the natural gas-fired emergency generator, because the emission unit is a spark ignition engine and is therefore not covered by this NSPS.
- (f) The requirements of the New Source Performance Standard for Stationary Spark Ignition Internal Combustion Engines, 40 CFR 60, Subpart JJJJ (326 IAC 12), are not included in the permit for the natural gas-fired emergency generator because the construction of the engine commenced prior to June 12, 2006.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (g) The requirements of the National Emission Standard for Hazardous Air Pollutants for Halogenated Solvent Cleaning, 40 CFR 63, Subpart T (326 IAC 20-6) are not included in the permit for the one (1) cold cleaning degreasing operation, since it does not use any solvent containing methylene chloride (CAS No. 75-09-2), perchloroethylene (CAS No. 127-18-4), trichloroethylene (CAS No. 79-01-6), 1,1,1-trichloroethane (CAS No. 71-55-6), carbon tetrachloride (CAS No. 56-23-5) or chloroform (CAS No. 67-66-3), or any combination of these halogenated HAP solvents, in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent.
- (h) The 5.36 HP natural gas-fired emergency generator, identified as Unit G is subject the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63, Subpart ZZZZ (326 IAC 20-82), because it is considered a existing stationary reciprocating internal combustion engine (RICE) (construction commenced before June 12, 2006) at an area source of hazardous air pollutants (HAP).

The facilities subject to this rule include the following:

- (1) One (1) 5.36 HP natural gas-fired emergency generator, identified as Unit G, constructed in 1983, and exhausting to Stack G.

Under NESHAP ZZZZ, this unit is considered an affected emission unit.

Applicable portions of the NESHAP are the following:

- (1) 40 CFR 63.6580
- (2) 40 CFR 63.6585
- (3) 40 CFR 63.6590(a)(1)(iii)
- (4) 40 CFR 63.6595(a)(1), (b), and (c)
- (5) 40 CFR 63.6603
- (6) 40 CFR 63.6605
- (7) 40 CFR 63.6625(e)(3), (f), (h), and (j)
- (8) 40 CFR 63.6635
- (9) 40 CFR 63.6640
- (10) 40 CFR 63.6645(a)(5)
- (11) 40 CFR 63.6650
- (12) 40 CFR 63.6655
- (13) 40 CFR 63.6660
- (14) 40 CFR 63.6665
- (15) 40 CFR 63.6670
- (16) 40 CFR 63.6675
- (17) Table 2d (item 5)
- (18) Table 6 (item 9)
- (19) Table 8

Note: Existing emergency spark ignition (SI) stationary RICE located at an area source of HAP are not subject to numerical CO or formaldehyde emission limitations, but are only subject to work and management practices under Table 2d and Table 6.

The requirements of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the source except as otherwise specified in 40 CFR 63, Subpart ZZZZ.

- (i) The requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63.7480, Subpart DDDDD (326 IAC 20-95) are not included in the permit for the Hurst and Kewanee Boilers (Unit D and Unit E), because the source is not a major source of HAPs as defined in 40 CFR 63.2 or 40 CFR 63.761.
- (j) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63.11193, Subpart JJJJJJ, are not included in the permit because Unit D and Unit E are gas-fired boilers, as defined by 40 CFR 63.11237, and are specifically exempted under 40 CFR 63.11195(e).

Compliance Assurance Monitoring (CAM)

- (k) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to each existing pollutant-specific emission unit that meets the following criteria:
 - (1) has a potential to emit before controls equal to or greater than the major source threshold for the pollutant involved;
 - (2) is subject to an emission limitation or standard for that pollutant; and
 - (3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

None of the emission units at this source have a potential to emit greater than the major source threshold for the pollutants emitted. Based on this evaluation, the requirements of 40 CFR Part 64, CAM are not applicable to any of the existing units as part of this Part 70 Operating Permit.

State Rule Applicability - Entire Source

326 IAC 1-6-3 (Preventive Maintenance Plan)

The source is subject to 326 IAC 1-6-3.

326 IAC 1-5-2 (Emergency Reduction Plans)

The source is subject to 326 IAC 1-5-2.

326 IAC 2-6 (Emission Reporting)

This source, not located in Lake, Porter, or LaPorte County, is subject to 326 IAC 2-6 (Emission Reporting) because it is required to have an operating permit pursuant to 326 IAC 2-7 (Part 70). The potential to emit of VOC and PM₁₀ is less than 250 tons per year; and the potential to emit of CO, NO_x, and SO₂ is less than 2,500 tons per year. Therefore, pursuant to 326 IAC 2-6-3(a)(2), triennial reporting is required. An emission statement shall be submitted in accordance with the compliance schedule in 326 IAC 2-6-3 by July 1, 2013, and every three (3) years thereafter. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

The source is not subject to the requirements of 326 IAC 6-5, because this source does not have potential fugitive particulate emissions greater than 25 tons per year.

326 IAC 6.5 (PM Limitations Except Lake County)

This source is not subject to 326 IAC 6.5 because it is not located in one of the following counties: Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo or Wayne.

326 IAC 6.8 (PM Limitations for Lake County)

This source is not subject to 326 IAC 6.8 because it is not located in Lake County.

326 IAC 12 (New Source Performance Standards)

See Federal Rule Applicability Section of this TSD.

326 IAC 20 (Hazardous Air Pollutants)

See Federal Rule Applicability Section of this TSD.

State Rule Applicability – Individual Facilities

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of this source will emit less than 10 tons per year of a single HAP and less than 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)

- (a) Pursuant to 326 IAC 6-2-3(e), particulate emissions from the 2.60 MMBtu per hour Hurst boiler (Unit D) shall not exceed 0.6 pounds of particulate matter per MMBtu heat input.
- (b) Pursuant to 326 IAC 6-2-4, particulate emissions from the 1.80 MMBtu per hour Kewanee boiler (Unit E) shall in no case exceed 0.6 pounds of particulate matter per MMBtu heat input.

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

- (a) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the particulate emissions shall each not exceed the following:

Emission Unit	Process Weight Rate (P) (tons/hr)	PM Emission Rate (E) (lb/hr)
Silo C1	3.57	9.618
Silo C2	3.57	9.618
Mixer B1	3.85	10.117
Mixer M1	1.70	5.850
Mixer M2	1.53	5.452

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and
 P = process weight rate in tons per hour

The dry filters used for particulate control shall be in operation and control emissions from the two (2) flour storage silos at all times when the two (2) flour storage silos are in operation, in order to comply with this limit.

- (b) Pursuant to 326 IAC 6-3-1(b)(14), the following emission units are not subject to the requirements of 326 IAC 6-3-2 since each has potential particulate emissions less than five hundred fifty-one thousandths (0.551) pound per hour, each.

Emission Unit
Hopper B1
Hopper B2
Shaker B1
Hopper M1
Breaker M1
Shaker M1
Hopper M2
Breaker M2
Shaker M2

326 IAC 7-1.1 Sulfur Dioxide Emission Limitations

None of the emission units are subject to 326 IAC 326 IAC 7-1.1, because the SO₂ PTE (or limited SO₂ PTE) from each unit is less than 25 tons/year or 10 pounds/hour.

326 IAC 8-1-6 (New facilities; general reduction requirements)

- (a) The bun line, identified as Line A, is not subject to 326 IAC 8-1-6 because it was constructed prior to January 1, 1980.
- (b) The muffin line, identified as Line B, is subject to 326 IAC 8-1-6 because it exceeded the 326 IAC 8-1-6 avoidance limit of 24.71 pounds per hour, which was made federally enforceable pursuant to Minor Permit Revision No. 151-26448-00060, issued June 26, 2008 (Revised by Minor Permit Revision No. 151-28993-00060, issued May 10, 2010). Therefore, IDEM, OAQ has performed a BACT analysis, which was based on the Draft "Top Down Approach: BACT Guidance" by USEPA, Office of Air Quality Planning Standards, March 15, 1990 (see Appendix B).

IDEM, OAQ has determined that the best available control technology (BACT) to control VOC emissions from the muffin line (Line B) shall be as follows:

- (1) VOC emissions from the muffin line, identified as Line B (consisting of the muffin griddle (Unit B) and the proof box (Line B Proof Box)), shall not exceed 35.16 tons per twelve (12) consecutive month period.
- (2) The source shall operate Line B (consisting of the muffin griddle (Unit B) and proof box (Line B Proof Box)) in accordance the manufacturer's design and operating specifications.
- (3) In order to ensure proper operation and to minimize potential emissions, the source shall perform proof box cleaning operations for the proof box (Line B Proof Box) and perform at a minimum, the following operations, or their equivalent, in accordance with their Sanitation Standard Operating Procedure:

Weekly Cleaning Procedure:

- (1) Clean inner housing top and bottom using a hand brush and knife scraper;
- (2) Clean inner conveyor shafts and bearing housings. Use a clean cloth for removal of residual debris and any bearing over lubrication;
- (3) Clean inner door ledge framework using a hand brush and clean cloth;
- (4) Wash inner housing;
- (5) Wash inner conveyor shafts and bearing housings;
- (6) Wash inner door ledge framework;
- (7) Clean debris from lower proofer doors using a hand brush and clean cloth. If there are problem areas on the doors, a knife scraper can be used to remove encrusted debris.
- (8) Wash lower proofer doors.

See Appendix B of this Technical Support Document for the detailed BACT Analysis.

Note: The existing avoidance limit has been replaced with this new requirement pursuant 326 IAC 8-1-6.

- (c) The muffin line, identified as Line H, is subject to 326 IAC 8-1-6 because the potential to emit VOC is greater than twenty-five (25) tons per year, and it will be constructed after January 1, 1980. Therefore, IDEM, OAQ has performed a BACT analysis, which was based on the Draft "Top Down Approach: BACT Guidance" by USEPA, Office of Air Quality Planning Standards, March 15, 1990 (see Appendix B).

IDEM, OAQ has determined that the best available control technology (BACT) to control VOC emissions from the muffin line (Line H) shall be as follows:

- (1) VOC emissions from the muffin line, identified as Line H (consisting of the muffin griddle (Unit H) and the proof box (Line H Proof Box)), shall not exceed 31.65 tons per twelve (12) consecutive month period.
- (2) The source shall operate Line H (consisting of the muffin griddle (Unit H) and proof box (Line H Proof Box)) in accordance the manufacturer's design and operating specifications.
- (3) In order to ensure proper operation and to minimize potential emissions, the source shall perform proof box cleaning operations for the proof box (Line H Proof Box) and perform at a minimum, the following operations, or their equivalent, in accordance with their Sanitation Standard Operating Procedure:

Weekly Cleaning Procedure:

- (1) Clean inner housing top and bottom using a hand brush and knife scraper;
- (2) Clean inner conveyor shafts and bearing housings. Use a clean cloth for removal of residual debris and any bearing over lubrication;
- (3) Clean inner door ledge framework using a hand brush and clean cloth;
- (4) Wash inner housing;
- (5) Wash inner conveyor shafts and bearing housings;
- (6) Wash inner door ledge framework;
- (7) Clean debris from lower proofer doors using a hand brush and clean cloth. If there are problem areas on the doors, a knife scraper can be used to remove encrusted debris.
- (8) Wash lower proofer doors.

See Appendix B of this Technical Support Document for the detailed BACT Analysis.

- (d) The potential to emit VOC from all other existing emission units are less than 25 tons per year, each. Therefore, 326 IAC 8-1-6 (BACT) does not apply.

326 IAC 8-3-2 (Cold Cleaner Degreaser Control Equipment and Operating Requirements)

Pursuant to 326 IAC 8-3-1(c)(1)(B), the degreasing operation (constructed in 2002) is subject to the requirements of 326 IAC 8-3-2(a), since it was constructed after January 1, 1980, and is not located in any of the following counties: Clark, Elkhart, Floyd, Lake, Marion, Porter, or St. Joseph.

The degreasing operation is equipped with a remote solvent reservoir. Pursuant to 326 IAC 8-3-1(c)(2)(A), the requirements of 326 IAC 8-3-2(b) are not applicable to the degreasing operation.

Since the degreasing operation is not required to comply with and is not operated in compliance with 326 IAC 20-6-1, and the degreasing operation uses a solvent containing greater than one percent (1%) of VOC by weight, it does not meet the exemption criteria contained in 326 IAC 8-3-1(d)(1). Therefore, the degreasing operation is subject to the applicable requirements of 326 IAC 8-3-2, as identified below:

Pursuant to 326 IAC 8-3-2 (Cold cleaner operation), the Permittee shall ensure the following control equipment and operating requirements are met:

- (1) Equip the degreaser with a cover.
- (2) Equip the degreaser with a device for draining cleaned parts.
- (3) Close the degreaser cover whenever parts are not being handled in the degreaser.
- (4) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;

- (5) Provide a permanent, conspicuous label that lists the operating requirements in subdivisions (3), (4), (6), and (7).
- (6) Store waste solvent only in closed containers.
- (7) Prohibit the disposal or transfer of waste solvent in such a manner that could allow greater than twenty percent (20%) of the waste solvent (by weight) to evaporate into the atmosphere.

326 IAC 8-3-8 (Material Requirements for Cold Cleaner Degreasers)

The source is not located in Clark, Floyd, Lake, or Porter County. Pursuant to 326 IAC 8-3-8(a)(2), the requirements of 326 IAC 8-3-8 are not applicable to the degreasing operations until January 1, 2015.

326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)

The requirements of 326 IAC 8-4-3 apply to all petroleum liquid storage vessels with capacities greater than one hundred fifty thousand (150,000) liters (thirty-nine thousand (39,000) gallons)) containing volatile organic compounds whose true vapor pressure is greater than 10.5 kPa (1.52 psi). The Permittee does not operate petroleum liquid storage vessels containing VOCs with capacities of thirty-nine thousand (39,000) gallons or greater. Therefore the requirements of 326 IAC 8-4-3 are not applicable and are not included in the permit.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)

The source is not located in Clark, Floyd, Lake, or Porter Counties. The source is located in Steuben County. Therefore, the requirements of 326 IAC 8-9 are not applicable to the miscellaneous storage tanks and are not included in the permit.

326 IAC 20-6 (Halogenated Solvent Cleaning)

The degreasing operations do not use halogenated HAP solvents. Therefore, the requirements of 326 IAC 20-6 are not applicable and are not included in the permit.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance determination requirements applicable to this source are as follows:

- (a) VOC Compliance Determination

- (1) Compliance with the VOC limit for Line B shall be determined by the following equation:

$$\text{VOC} = \sum_{m=1}^{12} \left(\left(\frac{(E_f + 1) * D}{2000 \text{ lbs / ton}} \right) + 0.007 \right)_m$$

Where:

- D = The amount of baked product produced during month m (tons/month);
E_f = The VOC emission factor (lb of VOC/ton of baked product); and
m = The compliance period is one (1) calendar month.

The Permittee shall use 3.71 lbs VOC/ton for the emission factor (E_f), or the emission factor determined from a valid compliance demonstration, which results in an emission factor higher than 3.71 lbs VOC/ton.

- (2) Compliance with the VOC limit for Line H shall be determined by the following equation:

$$\text{VOC} = \sum_{m=1}^{12} \left(\left(\frac{(E_f + 1) * D}{2000 \text{ lbs / ton}} \right) + 0.007 \right)_m$$

Where:

- D = The amount of baked product produced during month m (tons/month);
E_f = The VOC emission factor (lb of VOC/ton of baked product); and
m = The compliance period is one (1) calendar month.

The Permittee shall use 3.71 lbs VOC/ton for the emission factor (E_f), or the emission factor determined from a valid compliance demonstration, which results in an emission factor higher than 3.71 lbs VOC/ton.

- (b) Emission Controls Operation

Bag filters on the flour silos for particulate emissions control shall be in operation and control particulate emissions whenever the flour silos (Silos C1 and C2) are in operation.

- (c) Testing Requirements

Not later than 60 days after a change in the dough formulation of the muffins, which is expected to result in an increase of VOC emissions, the Permittee shall perform VOC testing of the one (1) muffin griddle, identified as Unit B, utilizing methods approved by the commissioner.

Not later than 60 days after a change in the dough formulation of the muffins, which is expected to result in an increase of VOC emissions, the Permittee shall perform VOC testing of the one (1) muffin griddle, identified as Unit H, utilizing methods approved by the commissioner

These requirements are required to ensure compliance with 326 IAC 8-1-6 (New Facilities; General Reduction Requirements) and 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes).

The compliance monitoring requirements applicable to this source are as follows:

Control	Parameter	Frequency	Range	Excursions and Exceedances
Silo C1 Fabric Filter	Visible Emissions	Daily	Normal-Abnormal	Response Steps
Silo C2 Fabric Filter	Visible Emissions	Daily	Normal-Abnormal	Response Steps

These monitoring conditions are necessary because the fabric filters must operate properly to ensure compliance with 326 IAC 6-3 (Process Operations) and 326 IAC 2-7 (Part 70).

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from applications and additional information submitted by the applicant. Applications for the purpose of this review were received on December 21, 2011, September 28, 2012, and February 19, 2013.

The construction and operation of this source shall be subject to the conditions of the attached proposed Significant Source Modification No. 151-32848-00060 and Part 70 Operating Permit No. T151-31292-00060. The staff recommends to the Commissioner that the Significant Source Modification No. 151-32848-00060 and Part 70 Operating Permit No. T151-31292-00060 be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Jason R. Krawczyk at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5174 or toll free at 1-800-451-6027 extension 4-5174.
- (b) A copy of the findings is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>
- (c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

Indiana Department of Environmental Management
Office of Air Quality

Appendix A – Emission Calculations
Technical Support Document (TSD)
Part 70 Operating Permit

Source Description and Location
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Company Name:	New Horizons Baking Company
Address City IN Zip:	700 W. Water Street, Fremont, Indiana 46737
County:	Steuben
SIC / NAICS Code:	2051 31181
Significant Source Modification No.:	151-32848-00060
Part 70 Operating Permit No.:	T151-31292-00060
Permit Reviewer:	Jason R. Krawczyk
Date:	March 7, 2013

Summary of Potential to Emit

The following tables summarize the potential to emit for New Horizons Baking Company. The subsequent pages of this document contain the detailed calculations for each of the processes at New Horizons Baking Company.

SUMMARY OF EMISSIONS

Uncontrolled / Unlimited Emissions (Tons/Yr)																				
Pollutant	Bun Line (Line A)			Muffin Line (Line B)			Muffin Line (Line H)			Silo Loading	Bun Line (Line A) Ingredient Handling	Muffin Line (Line B) Ingredient Handling	Muffin Line (Line H) Ingredient Handling	Boilers (D &E)	Heaters (F1 - F12)	Emergency Generator (Unit G)	VOC Storage Tanks	Insignificant Activities	Paved Roadways (Fugitive)	Total
	Oven (Unit A)	Proof Box	Nat. Gas	Griddle (Unit B)	Proof Box	Nat. Gas	Griddle (Unit H)	Proof Box	Nat. Gas											
PM	-	-	0.04	-	-	0.03	-	-	0.03	103.15	9.70	4.27	3.84	0.04	0.01	3.4E-05	-	-	0.19	121.10
PM10	-	-	0.15	-	-	0.12	-	-	0.12	36.14	2.66	1.17	1.05	0.14	0.04	2.6E-07	-	-	0.04	41.59
PM2.5	-	-	0.15	-	-	0.12	-	-	0.12	36.14	2.66	1.17	1.05	0.14	0.04	2.6E-07	-	-	0.01	41.59
SO2	-	-	0.01	-	-	9.5E-03	-	-	0.01	-	-	-	-	0.01	3.1E-03	2.0E-06	-	-	-	0.05
NOx	-	-	1.98	-	-	1.59	-	-	1.59	-	-	-	-	1.89	0.52	2.9E-03	-	-	-	7.56
VOC	62.15	16.86	0.11	27.62	7.45	0.09	24.86	6.70	0.09	-	-	-	-	0.10	0.03	5.0E-03	0.02	0.11	-	146.19
CO	-	-	1.66	-	-	1.33	-	-	1.33	-	-	-	-	1.59	0.43	1.9E-03	-	-	-	6.35
GHGs as CO2e	-	-	2,385	-	-	1,918	-	-	1,918	-	-	-	-	2,281	622	4.7E-01	-	-	-	9,125
HAP	1.86	0.51	-	0.83	0.22	-	0.75	0.20	-	-	-	-	-	-	-	2.9E-05	-	-	-	4.37
HAP Hexane	-	-	0.04	-	-	0.03	-	-	0.03	-	-	-	-	3.4E-02	9.3E-03	3.8E-06	-	-	-	0.14
Combined HAPs	1.86	0.51	0.04	0.83	0.22	0.03	0.75	0.20	0.03	-	-	-	-	3.6E-02	9.7E-03	2.4E-04	-	-	-	4.51

Controlled / Unlimited Emissions (Tons/Yr)																				
Pollutant	Bun Line (Line A)			Muffin Line (Line B)			Muffin Line (Line H)			Silo Loading	Bun Line (Line A) Ingredient Handling	Muffin Line (Line B) Ingredient Handling	Muffin Line (Line H) Ingredient Handling	Boilers (D &E)	Heaters (F1 - F12)	Emergency Generator (Unit G)	VOC Storage Tanks	Insignificant Activities	Paved Roadways (Fugitive)	Total
	Oven (Unit A)	Proof Box	Nat. Gas	Griddle (Unit B)	Proof Box	Nat. Gas	Griddle (Unit H)	Proof Box	Nat. Gas											
PM	-	-	0.04	-	-	0.03	-	-	0.03	1.03	9.70	4.27	3.84	0.04	0.01	3.4E-05	-	-	0.19	18.98
PM10	-	-	0.15	-	-	0.12	-	-	0.12	0.36	2.66	1.17	1.05	0.14	0.04	2.6E-07	-	-	0.04	5.81
PM2.5	-	-	0.15	-	-	0.12	-	-	0.12	0.36	2.66	1.17	1.05	0.14	0.04	2.6E-07	-	-	0.01	5.81
SO2	-	-	0.01	-	-	9.5E-03	-	-	0.01	-	-	-	-	0.01	3.1E-03	2.0E-06	-	-	-	0.05
NOx	-	-	1.98	-	-	1.59	-	-	1.59	-	-	-	-	1.89	0.52	2.9E-03	-	-	-	7.56
VOC	62.15	16.86	0.11	27.62	7.45	0.09	24.86	6.70	0.09	-	-	-	-	0.10	0.03	5.0E-03	0.02	0.11	-	146.19
CO	-	-	1.66	-	-	1.33	-	-	1.33	-	-	-	-	1.59	0.43	1.9E-03	-	-	-	6.35
GHGs as CO2e	-	-	2,385	-	-	1,918	-	-	1,918	-	-	-	-	2,281	622	4.7E-01	-	-	-	9,125
HAP	1.86	0.51	-	0.83	0.22	-	0.75	0.20	-	-	-	-	-	-	-	2.9E-05	-	-	-	4.37
HAP Hexane	-	-	3.6E-02	-	-	2.9E-02	-	-	0.03	-	-	-	-	3.4E-02	9.3E-03	3.8E-06	-	-	-	0.14
Combined HAPs	1.86	0.51	3.7E-02	0.83	0.22	3.0E-02	0.75	0.20	0.03	-	-	-	-	3.6E-02	9.7E-03	2.4E-04	-	-	-	4.51

Potential to Emit After Issuance (Tons/Yr)																				
Pollutant	Bun Line (Line A)			Muffin Line (Line B)			Muffin Line (Line H)			Silo Loading	Bun Line (Line A) Ingredient Handling	Muffin Line (Line B) Ingredient Handling	Muffin Line (Line H) Ingredient Handling	Boilers (D &E)	Heaters (F1 - F12)	Emergency Generator (Unit G)	VOC Storage Tanks	Insignificant Activities	Paved Roadways (Fugitive)	Total
	Oven (Unit A)	Proof Box	Nat. Gas	Griddle (Unit B)	Proof Box	Nat. Gas	Griddle (Unit H)	Proof Box	Nat. Gas											
PM	-	-	0.04	-	-	0.03	-	-	0.03	103.15	9.70	4.27	3.84	0.04	0.01	3.4E-05	-	-	0.19	121.10
PM10	-	-	0.15	-	-	0.12	-	-	0.12	36.14	2.66	1.17	1.05	0.14	0.04	2.6E-07	-	-	0.04	41.59
PM2.5	-	-	0.15	-	-	0.12	-	-	0.12	36.14	2.66	1.17	1.05	0.14	0.04	2.6E-07	-	-	0.01	41.59
SO2	-	-	0.01	-	-	9.5E-03	-	-	0.01	-	-	-	-	1.1E-02	3.1E-03	2.0E-06	-	-	-	0.05
NOx	-	-	1.98	-	-	1.59	-	-	1.59	-	-	-	-	1.89	0.52	2.9E-03	-	-	-	7.56
VOC	62.15	16.86	0.11	35.16			31.65			-	-	-	-	0.10	0.03	5.0E-03	0.02	0.11	-	146.19
CO	-	-	1.66	-	-	1.33	-	-	1.33	-	-	-	-	1.59	0.43	1.9E-03	-	-	-	6.35
GHGs as CO2e	-	-	2,385	-	-	1,918	-	-	1,918	-	-	-	-	2,281	622	4.7E-01	-	-	-	9,125
HAP	1.86	0.51	-	0.83	0.22	-	0.75	0.20	-	-	-	-	-	-	-	2.9E-05	-	-	-	4.37
HAP Hexane	-	-	3.6E-02	-	-	2.9E-02	-	-	0.03	-	-	-	-	3.4E-02	9.3E-03	3.8E-06	-	-	-	0.14
Combined HAPs	1.86	0.51	3.7E-02	0.83	0.22	3.0E-02	0.75	0.20	0.03	-	-	-	-	3.6E-02	9.7E-03	2.4E-04	-	-	-	4.51

Note:
Fugitive PM, PM10, and PM2.5 from paved roadways, and VOC from tanks and degreasing operations are not counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e	Acet.	Total HAPs
PTE After Issuance (ton/yr)	121.10	41.59	41.59	4.5E-02	7.56	146.19	6.35	9,125	4.37	4.51
Part 70 Major Source Threshold	NA	100	100	100	100	100	100	100,000	10	25
PSD Major Source Threshold	250	250	250	250	250	250	250	100,000	NA	NA

SUMMARY OF EMISSIONS - Potential to Emit of Modification

Unrestricted Emissions for Modification (Tons/Yr)												
Pollutant	Bun Line (Line A)			Muffin Line (Line B)			Muffin Line (Line H)				Silo Loading	Total
	Proof Box	Ingredient Handling	Nat. Gas	Proof Box	Ingredient Handling	Nat. Gas	Griddle (Unit H)	Proof Box	Nat. Gas	Ingredient Handling		
PM	-	9.70	-	-	4.27	-	-	-	0.03	3.84	21.32	39.16
PM ₁₀	-	2.66	-	-	1.17	-	-	-	0.12	1.05	7.47	12.47
PM _{2.5}	-	2.66	-	-	1.17	-	-	-	0.12	1.05	7.47	12.47
SO ₂	-	-	-	-	-	-	-	-	0.01	-	-	0.01
NO _x	-	-	-	-	-	-	-	-	1.59	-	-	1.59
VOC	16.86	-	-	7.45	-	-	24.86	6.70	0.09	-	-	55.96
CO	-	-	-	-	-	-	-	-	1.33	-	-	1.33
CO ₂ e	-	-	2,385	-	-	1,918	-	-	1,918	-	-	6,221
HAP Acetaldehyde	0.51	-	-	0.22	-	-	0.75	0.20	-	-	-	1.68
HAP Hexane	-	-	-	-	-	-	-	-	0.03	-	-	0.03
Combined HAPs	0.51	-	-	0.22	-	-	0.75	0.20	0.03	-	-	1.71

**Unlimited PTE from Bun Line (Line A)
 Bun Oven (Unit A) and Proof Box (Line A Proof Box) Emissions**

VOC and HAP Emissions from Bread Fermentation:

Maximum Production Rate: **3.85 tons/hr** 7700 lb bread/hr

According to AP-42, Chapter 9.9.6 - Bread Baking, the VOC emission factor from the bread baking process can be estimated with the following equation:

$$E.F. = 0.95 Y_i + 0.195 t_i - 0.51 S - 0.86 t_s + 1.90$$

Where	Y _i =	2.81 Initial baker's percent of yeast
	t _i =	2.75 Total yeast action time in hours
	S =	1.25 Final (spike) baker's percent of yeast
	t _s =	0.91 Spiking time in hours
	E.F. =	3.69 lb of VOC/ton of baked bread

Therefore, the potential uncontrolled VOC emissions from bread baking =

$$3.85 \text{ tons/hr} \times 3.69 \text{ lbs/ton} \times 8760 \text{ hrs/yr} \times 1 \text{ tons/2000 lbs} = \mathbf{62.15 \text{ tons/yr}}$$

VOCs emitted during fermentation (leavening) assumed to be 97% ethanol and 3% acetaldehyde (VOC/HAP), based on the following document and supporting information:

1. "Alternative Control Technology Document for Bakery Oven Emissions" (EPA 453/R-92-017, December 1992)
2. Henderson, D.C., 1977, "Commercial Bakeries as a Major Source of Reactive Volatile Organic Gases", U.S. EPA, Region XI Surveillance and Analysis Division

Therefore, the potential uncontrolled HAP (acetaldehyde) emissions from bread baking =

$$62.15 \text{ tons/yr} \times 3\% = \mathbf{1.86 \text{ tons/yr}}$$

VOC Emissions from Line A Proof Box:

Emission Unit ID	Emission Factor (lb/ton)	Uncontrolled Potential Oven Emissions		Uncontrolled Potential Proof Box Emissions	
		VOC (tons/yr)	Acetaldehyde (tons/yr)	VOC (tons/yr)	Acetaldehyde (tons/yr)
Line A Proof Box	1.00	62.15	1.86	16.86	0.51

Note:

The source has agreed to utilize the average emission factor determined through proof box testing performed in June 2010 at the Alpha Baking Co., Inc. facility in LaPorte, IN.

IDEM, OAQ has agreed to accept this method of calculating VOC potential emissions from the proof box.

Methodology:

Potential Emissions (ton/year) = Emission Factor (lb/ton) x Maximum Throughput (tons/year) x (1 ton/2000 lbs)

Potential Acetaldehyde Emissions (ton/year) = Potential VOC Emissions (ton/yr) x 3%

**Unlimited PTE from Bun Line (Line A)
Line A Oven
Natural Gas Combustion**

	Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr				
	4.60		39.51				
	Pollutant						
Emission Factor in lb/MMCF	PM* 1.9	PM10* 7.6	direct PM2.5* 7.6	SO2 0.6	NOx 100 **see below	VOC 5.5	CO 84
Potential Emission in tons/yr	0.04	0.15	0.15	0.01	1.98	0.11	1.66

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

PM2.5 emission factor is filterable and condensable PM2.5 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutant Emissions

	HAPs - Organics				
	Benzene	Dichloro- benzene	Formal- dehyde	Hexane	Toluene
Emission Factor in lb/MMCF	2.1E-03	1.2E-03	7.5E-02	1.80	3.4E-03
Potential Emission in tons/yr	4.1E-05	2.4E-05	1.5E-03	3.6E-02	6.7E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMCF	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	9.9E-06	2.2E-05	2.8E-05	7.5E-06	4.1E-05

Combined HAPs: 0.04

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Greenhouse Gas Emissions

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMCF	120,000	2.3	2.2
Potential Emission in tons/yr	2,370	0.045	0.043
Summed Potential Emissions in tons/yr	2,370		
CO2e Total in tons/yr	2,385		

Methodology:

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.

Emission Factors are from AP 42, Table

Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

**Unlimited PTE from Muffin Line (Line B)
 Griddle (Unit B) and Proof Box (Line B Proof Box) Emissions**

VOC and HAP Emissions from Bread Fermentation:

Maximum Production Rate: **1.70 tons/hr** 3400 lb bread/hr

According to AP-42, Chapter 9.9.6 - Bread Baking, the VOC emission factor from the bread baking process can be estimated with the following equation:

$$E.F. = 0.95 Y_i + 0.195 t_i - 0.51 S - 0.86 t_s + 1.90$$

Where Y_i = Initial baker's percent of yeast
 t_i = Total yeast action time in hours
 S = Final (spike) baker's percent of yeast
 t_s = Spiking time in hours
 E.F. = lb of VOC/ton of baked bread

Maximum VOC emission factor: **3.71 lb/ton** based on a stack test performed November 2010.

Therefore, the potential uncontrolled VOC emissions from bread baking =

$$1.70 \text{ tons/hr} \times 3.71 \text{ lbs/ton} \times 8760 \text{ hrs/yr} \times 1 \text{ tons/2000 lbs} = \mathbf{27.62 \text{ tons/yr}}$$

VOCs emitted during fermentation (leavening) assumed to be 97% ethanol and 3% acetaldehyde (VOC/HAP), based on the following document and supporting information:

1. "Alternative Control Technology Document for Bakery Oven Emissions" (EPA 453/R-92-017, December 1992)
2. Henderson, D.C., 1977, "Commercial Bakeries as a Major Source of Reactive Volatile Organic Gases", U.S. EPA, Region XI Surveillance and Analysis Division

Therefore, the potential uncontrolled HAP (acetaldehyde) emissions from bread baking =

$$27.62 \text{ tons/yr} \times 3\% = \mathbf{0.83 \text{ tons/yr}}$$

VOC Emissions from Line B Proof Box:

Emission Unit ID	Emission Factor (lb/ton)	Uncontrolled Potential Oven Emissions		Uncontrolled Potential Proof Box Emissions	
		VOC (tons/yr)	Acetaldehyde (tons/yr)	VOC (tons/yr)	Acetaldehyde (tons/yr)
Line B Proof Box	1.00	27.62	0.83	7.45	0.22

Note:

The source has agreed to utilize the average emission factor determined through proof box testing performed in June 2010 at the Alpha Baking Co., Inc. facility in LaPorte, IN.

IDEM, OAQ has agreed to accept this method of calculating VOC potential emissions from the proof box.

Methodology:

Potential Emissions (ton/year) = Emission Factor (lb/ton) x Maximum Throughput (tons/year) x (1 ton/2000 lbs)

Potential Acetaldehyde Emissions (ton/year) = Potential VOC Emissions (ton/yr) * 3%

**Unlimited PTE from Muffin Line (Line B)
Line B Griddle (Unit B)
Natural Gas Combustion**

	Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr				
	3.70		31.78				
	Pollutant						
Emission Factor in lb/MMCF	PM* 1.9	PM10* 7.6	direct PM2.5* 7.6	SO2 0.6	NOx 100 **see below	VOC 5.5	CO 84
Potential Emission in tons/yr	0.03	0.12	0.12	0.01	1.59	0.09	1.33

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

PM2.5 emission factor is filterable and condensable PM2.5 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutant Emissions

	HAPs - Organics				
	Benzene	Dichloro- benzene	Formal- dehyde	Hexane	Toluene
Emission Factor in lb/MMCF	2.1E-03	1.2E-03	7.5E-02	1.80	3.4E-03
Potential Emission in tons/yr	3.3E-05	1.9E-05	1.2E-03	2.9E-02	5.4E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMCF	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	7.9E-06	1.7E-05	2.2E-05	6.0E-06	3.3E-05

Combined HAPs: 0.03

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Greenhouse Gas Emissions

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMCF	120,000	2.3	2.2
Potential Emission in tons/yr	1,907	0.037	0.035
Summed Potential Emissions in tons/yr	1,907		
CO2e Total in tons/yr	1,918		

Methodology:

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.

Emission Factors are from AP 42, Table

Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

**Unlimited PTE from Muffin Line (Line H)
 Griddle (Unit H) and Proof Box (Line H Proof Box) Emissions**

VOC and HAP Emissions from Bread Fermentation:

Maximum Production Rate: **1.53 tons/hr** 3060 lb bread/hr

According to AP-42, Chapter 9.9.6 - Bread Baking, the VOC emission factor from the bread baking process can be estimated with the following equation:

$$E.F. = 0.95 Y_i + 0.195 t_i - 0.51 S - 0.86 t_s + 1.90$$

Where Y_i = Initial baker's percent of yeast
 t_i = Total yeast action time in hours
 S = Final (spike) baker's percent of yeast
 t_s = Spiking time in hours
 E.F. = lb of VOC/ton of baked bread

Maximum VOC emission factor: **3.71 lb/ton** based on the stack test performed November 2010 on Muffin Line B.

Therefore, the potential uncontrolled VOC emissions from bread baking =

$$1.53 \text{ tons/hr} \times 3.71 \text{ lbs/ton} \times 8760 \text{ hrs/yr} \times 1 \text{ tons/2000 lbs} = \mathbf{24.86 \text{ tons/yr}}$$

VOCs emitted during fermentation (leavening) assumed to be 97% ethanol and 3% acetaldehyde (VOC/HAP), based on the following document and supporting information:

1. "Alternative Control Technology Document for Bakery Oven Emissions" (EPA 453/R-92-017, December 1992)
2. Henderson, D.C., 1977, "Commercial Bakeries as a Major Source of Reactive Volatile Organic Gases", U.S. EPA, Region XI Surveillance and Analysis Division

Therefore, the potential uncontrolled HAP (acetaldehyde) emissions from bread baking =

$$24.86 \text{ tons/yr} \times 3\% = \mathbf{0.75 \text{ tons/yr}}$$

VOC Emissions from Line H Proof Box:

Emission Unit ID	Emission Factor (lb/ton)	Uncontrolled Potential Oven Emissions		Uncontrolled Potential Proof Box Emissions	
		VOC (tons/yr)	Acetaldehyde (tons/yr)	VOC (tons/yr)	Acetaldehyde (tons/yr)
Line H Proof Box	1.00	24.86	0.75	6.70	0.20

Note:

The source has agreed to utilize the average emission factor determined through proof box testing performed in June 2010 at the Alpha Baking Co., Inc. facility in LaPorte, IN.

IDEM, OAQ has agreed to accept this method of calculating VOC potential emissions from the proof box.

Methodology:

Potential Emissions (ton/year) = Emission Factor (lb/ton) x Maximum Throughput (tons/year) x (1 ton/2000 lbs)

Potential Acetaldehyde Emissions (ton/year) = Potential VOC Emissions (ton/yr) * 3%

**Unlimited PTE from Muffin Line (Line H)
Line H Griddle (Unit H)
Natural Gas Combustion**

	Heat Input Capacity MMBtu/hr		Potential Throughput MMCF/yr				
	3.70		31.78				
	Pollutant						
Emission Factor in lb/MMCF	PM* 1.9	PM10* 7.6	direct PM2.5* 7.6	SO2 0.6	NOx 100 **see below	VOC 5.5	CO 84
Potential Emission in tons/yr	0.03	0.12	0.12	0.01	1.59	0.09	1.33

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

PM2.5 emission factor is filterable and condensable PM2.5 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutant Emissions

	HAPs - Organics				
	Benzene	Dichloro-benzene	Formal-dehyde	Hexane	Toluene
Emission Factor in lb/MMCF	2.1E-03	1.2E-03	7.5E-02	1.80	3.4E-03
Potential Emission in tons/yr	3.3E-05	1.9E-05	1.2E-03	2.9E-02	5.4E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMCF	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	7.9E-06	1.7E-05	2.2E-05	6.0E-06	3.3E-05

Combined HAPs: 0.03

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Greenhouse Gas Emissions

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMCF	120,000	2.3	2.2
Potential Emission in tons/yr	1,907	0.037	0.035
Summed Potential Emissions in tons/yr	1,907		
CO2e Total in tons/yr	1,918		

Methodology:

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.

Emission Factors are from AP 42, Table

Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Emissions from Dry Ingredient Storage and Conveying

Uncontrolled Emission Factor (lbs/ton)*	
PM	PM10 / PM2.5
3.14	1.10

Filter Unit Control Efficiency
PM/PM10/PM2.5
99.0%

Potential to Emit (PTE) of Particulate (PM / PM10 / PM2.5)

Emission Unit	Main Silo Throughput (lbs/hr)	Flour Recovery (20%)** (lbs/hr)	Maximum Ingredient Throughput (lbs/hr)	(tons/hr)	Uncontrolled PTE of PM (lbs/hr)	Uncontrolled PTE of PM10/PM2.5 (lbs/hr)	Uncontrolled PTE of PM (tons/yr)	Uncontrolled PTE of PM10/PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10/PM2.5 (tons/yr)
Silo C1	6,250	1,250	7,500	3.75	11.78	4.13	51.57	18.07	0.52	0.18
Silo C2	6,250	1,250	7,500	3.75	11.78	4.13	51.57	18.07	0.52	0.18
Total	12,500	2,500	15,000	7.50	23.55	8.25	103.15	36.14	1.03	0.36

Note:

*The uncontrolled potential emissions of particulate from dry ingredient storage and conveying before controls are estimated using AP-42 Table 11.12-2 emission factors for the uncontrolled truck unloading of cement supplement to elevated storage silo (pneumatic). No AP-42 emission factors exist for dry ingredient (including flour) pneumatic conveyance. Ingredient throughput is limited by the maximum throughput of the ovens. Therefore, the maximum ingredient throughput for dry ingredient storage and conveying has been set equal to the combined maximum material throughput through the Line A and Line B ovens.

**Flour is recovered throughout the process and returned to the silos to be reused. A 20% recovery factor is added to the total throughput to account for this additional flour usage. Assumed PM10 = PM2.5

Methodology:

Maximum Hourly Throughput (tons/hr) = [Maximum Hourly Throughput (lbs/hr)] / [2000 lbs/ton]

Uncontrolled PTE of PM or PM10 (lbs/hour) = [Maximum Hourly Throughput (tons/hr)] x [Emission Factor (lbs/ton)]

Uncontrolled PTE of PM or PM10 (tons/year) = [Uncontrolled PTE of PM or PM10 (lbs/hour)] x [8760 hours/year] / [2000 lbs/ton]

Controlled PTE of PM or PM10 (tons/year) = [Uncontrolled PTE of PM or PM10 (tons/year)] x [1 - Control Efficiency]

Particulate Emissions from Dry/Mixed Ingredient Handling

The following calculations determine the emissions from the handling of flour and other dry ingredients to various emission units.

Emission Unit		Maximum Capacity		Emission Factors			Uncontrolled Potential to Emit					
				PM	PM ₁₀	PM _{2.5}	PM	PM ₁₀	PM _{2.5}	PM	PM ₁₀	PM _{2.5}
ID #	Description	lb/hr	tons/hr	lb/ton	lb/ton	lb/ton	lbs/hr	lbs/hr	lbs/hr	tons/yr	tons/yr	tons/yr
Bun Line (Line A)												
Hopper B1	Weigh Hopper	4,577	2.289	0.0048	0.0028	0.0028	1.10E-02	6.41E-03	6.41E-03	0.048	0.028	0.028
Mixer B1	Dough Mixer	7,700	3.850	0.572	0.156	0.156	2.20	0.60	0.60	9.65	2.63	2.63
Hopper B2	Dusting Hopper	100	0.050	0.0048	0.0028	0.0028	2.40E-04	1.40E-04	1.40E-04	1.1E-03	6.1E-04	6.1E-04
Shaker B1	Zig Zag Boards (flour)	100	0.050	0.0048	0.0028	0.0028	2.40E-04	1.40E-04	1.40E-04	1.1E-03	6.1E-04	6.1E-04
Total for Bun Line							2.21	0.61	0.61	9.70	2.66	2.66
Muffin Line (Line B)												
Hopper M1	Weigh Hopper	770	0.385	0.0048	0.0028	0.0028	1.85E-03	1.08E-03	1.08E-03	8.1E-03	4.7E-03	4.7E-03
Breaker M1	Cornmeal Bag Breaker	100	0.050	0.0048	0.0028	0.0028	2.40E-04	1.08E-02	1.08E-02	1.1E-03	6.1E-04	6.1E-04
Mixer M1	Dough Mixer	3,400	1.700	0.572	0.156	0.156	0.97	0.01	0.01	4.26	1.16	1.16
Shaker M1	Zig Zag Boards (corn Starch)	100	0.0500	0.0048	0.0028	0.0028	2.40E-04	1.40E-04	1.40E-04	1.1E-03	6.1E-04	6.1E-04
Total for Muffin Line							0.97	0.02	0.02	4.27	1.17	1.17
Muffin Line (Line H)												
Hopper M2	Weigh Hopper	693	0.347	0.0048	0.0028	0.0028	1.66E-03	9.70E-04	9.70E-04	7.3E-03	4.2E-03	4.2E-03
Breaker M2	Cornmeal Bag Breaker	90	0.045	0.0048	0.0028	0.0028	2.16E-04	1.26E-04	1.26E-04	9.5E-04	5.5E-04	5.5E-04
Mixer M2	Dough Mixer	3,060	1.530	0.572	0.156	0.156	0.88	0.24	0.24	3.83	1.05	1.05
Shaker M2	Zig Zag Boards (corn Starch)	90	0.045	0.0048	0.0028	0.0028	2.16E-04	1.26E-04	1.26E-04	9.5E-04	5.5E-04	5.5E-04
Total for Muffin Line							0.88	0.24	0.24	3.84	1.05	1.05
Combined Total Emissions							4.07	0.87	0.87	17.81	4.88	4.88

Notes:

The emission factors are from AP-42, Ch. 11.12, Table 11.12-2 for hopper loading (SCC# 3-05-011-08) and mixer loading (SCC# 3-05-011-09).

PM_{2.5} emissions assumed equal to PM₁₀ emissions.

Methodology:

Maximum Capacity (tons/hr) = Maximum Capacity (lb/hr) ÷ 2000 lb/ton

Uncontrolled Emissions (tons/yr) = Maximum Capacity (tons/hr) x Emission Factor (lb/ton) x 8760 hr/yr ÷ 2000 lb/ton

Boilers D & E
Natural Gas Combustion

	Heat Input Capacity	Potential Throughput	Date Installed
	MMBtu/hr	MMCF/yr	
Unit D	2.6	22.33	1979
Unit E	1.8	15.46	1996
	4.40	37.79	

	Pollutant						
Emission Factor in lb/MMCF	PM* 1.9	PM10* 7.6	direct PM2.5* 7.6	SO2 0.6	NOx 100 **see below	VOC 5.5	CO 84
Potential Emission in tons/yr	0.04	0.14	0.14	0.01	1.89	0.10	1.59

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 25

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutant Emissions

	HAPs - Organics				
	Benzene	Dichloro-benzene	Formal-dehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.80	3.4E-03
Potential Emission in tons/yr	4.0E-05	2.3E-05	1.4E-03	3.4E-02	6.4E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	9.4E-06	2.1E-05	2.6E-05	7.2E-06	4.0E-05

Combined HAPs: 0.04

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Greenhouse Gas Emissions

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMcf	120,000	2.3	2.2
Potential Emission in tons/yr	2,267	0.04	0.04
Summed Potential Emissions in tons/yr	2,267		
CO2e Total in tons/yr	2,281		

Methodology:

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.

Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.

Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Heaters F1 - F12
Natural Gas Combustion

	Heat Input Capacity	Potential Throughput	Date Installed
	MMBtu/hr	MMCF/yr	
Unit F1	0.1	0.86	1979
Unit F2	0.1	0.86	1979
Unit F3	0.1	0.86	1979
Unit F4	0.1	0.86	1979
Unit F5	0.1	0.86	1979
Unit F6	0.1	0.86	1979
Unit F7	0.1	0.86	1979
Unit F8	0.1	0.86	1979
Unit F9	0.1	0.86	2004
Unit F10	0.1	0.86	2004
Unit F11	0.1	0.86	2004
Unit F12	0.1	0.86	2004
Total	1.20	10.31	

	Pollutant						
Emission Factor in lb/MMCF	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
	1.9	7.6	7.6	0.6	100	5.5	84
					**see below		
Potential Emission in tons/yr	9.8E-03	3.9E-02	3.9E-02	3.1E-03	0.52	2.8E-02	0.43

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

PM2.5 emission factor is filterable and condensable PM2.5 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 3

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutant Emissions

	HAPs - Organics				
	Benzene	Dichloro-benzene	Formal-dehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.1E-05	6.2E-06	3.9E-04	9.3E-03	1.8E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	2.6E-06	5.7E-06	7.2E-06	2.0E-06	1.1E-05

Combined HAPs: 0.01

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Greenhouse Gas Emissions

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMcf	120,000	2.3	2.2
Potential Emission in tons/yr	618	0.01	0.01
Summed Potential Emissions in tons/yr	618		
CO2e Total in tons/yr	622		

Methodology:

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.

Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.

Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Emissions from Emergency Generator (Unit G)

Engine Rating hp	Heat Input Capacity MMBtu/hr		Maxium Heat Input Capacity MMBtu/yr		Operating Time (hrs/yr)		
5.36	0.014		6.83		500		
	Pollutant						
Emission Factor in lb/MMBtu	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
	9.91E-03	7.71E-05	7.71E-05	5.88E-04	0.847	1.47	0.557
Potential Emission in tons/yr	3.4E-05	2.6E-07	2.6E-07	2.0E-06	2.9E-03	5.0E-03	1.9E-03

*PM emission factor is condensable PM only. PM10 and PM2.5 emission factors are filterable only.
Emission Factors from AP-42 Chapter 3.2, Table 3.2-2 for 4-stroke lean-burn engines <90% Load.

Hazardous Air Pollutant Emissions

	HAPs - Organics				
	Acetaldehyde	Acrolein	Benzene	Formal- dehyde	Methanol
Emission Factor in lb/MMBtu	8.4E-03	5.1E-03	4.4E-04	5.3E-02	2.5E-03
Potential Emission in tons/yr	2.9E-05	1.8E-05	1.5E-06	1.8E-04	8.5E-06
	Ethylbenzene	Styrene	Hexane	Toluene	Xylene
Emission Factor in lb/MMBtu	3.97E-05	2.36E-05	1.11E-03	4.08E-04	1.84E-04
Potential Emission in tons/yr	1.4E-07	8.1E-08	3.8E-06	1.4E-06	6.3E-07
	Total HAPs:				2.4E-04

HAP emission factors are from AP-42 Chapter 3.2, Table 3.2-2.
Additional HAPs emission factors are available in AP-42, Chapter 3.2.

Methodology:

MMBtu = 1,000,000 Btu
Maximum Heat Input Capacity (MMBtu/yr) = Heat Input Capacity (MMBtu/hr) x 500 hrs/yr
Emission (tons/yr) = Maximum Heat Input Capacity (MMBtu/yr) x Emission Factor (lb/MMBtu)/2,000 lb/ton

Greenhouse Gas Emissions

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMBtu	110	1.25	1.00E-04
Potential Emission in tons/yr	0.38	4.3E-03	3.4E-07
Summed Potential Emissions in tons/yr	0.38		
CO2e Total in tons/yr	0.47		

Methodology:

The N2O Emission Factor is from 40 CFR 98, Subpart C, Table C-2 for natural gas.
The CO2 and CH4 Emission Factors are from AP 42, Table 3.2, Table 3.2-2.
Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Emission (tons/yr) = Maximum Heat Input Capacity (MMBtu/yr) x Emission Factor (lb/MMBtu)/2,000 lb/ton
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

*As defined in the September 6, 1995 memorandum from John S. Seitz of US EPA on the subject of "Calculating Potential to Emit for Emergency Generators", an emergency generator's sole function is to provide back-up power when power from the local utility is interrupted. The only circumstances under which an emergency generator would operate when utility power is available are during operator training or brief maintenance checks. The generator's potential to emit is based on an operating time of 500 hours per year as set forth in the EPA memo.

Process Tanks and Insignificant Activites
VOC Emissions

Process Tanks

Tank ID	lb/year	lb/hr	VOC Tons/Yr
HD-1 Oven	0.05	5.7E-06	2.5E-05
HD-2 Developer	0.05	5.7E-06	2.5E-05
GL-1 Griddle	0.05	5.7E-06	2.5E-05
PRO-1 Proofer	0.05	5.7E-06	2.5E-05
Oven-1	0.05	5.7E-06	2.5E-05
Maintenance Solvent 1	17.47	2.0E-03	0.01
Water Soluble	17.64	2.0E-03	0.01
K-Lub	0.06	6.8E-06	3.0E-05
Total:			0.02

Emissions were calculated using Tanks 4.0.9d software and submitted by the source.

Insignificant Activities

Material	Usage (gal/yr)	lb of VOC/ gal of material	VOC Emissions (tpy)
Oil - GL-1	130	0.01	6.5E-04
Oil - Oven - 1	140	0.01	7.0E-04
Oil - K-lub	660	0.01	3.3E-03
Degreasing - Maintenance Solvent 105	30	6.7	0.10
Total:			0.11

Methodology:

VOC Emissions (tpy) = Usage (gal/yr) x lb of VOC / gal of material x 1 lb / 2000 ton

Fugitive Dust Emissions - Paved Roads

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (1/2011).

Vehicle Informtation (provided by source)

Type	Maximum number of vehicles per day	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle (entering plant) (one-way trip) - tractor trailer	8	1	8	20.00	160.0	1320	0.250	2.0	730.0
Vehicle (entering plant) (one-way trip) - car	80	1	80	1.65	132.0	1320	0.250	20.0	7300.0
Vehicle (leaving plant) (one-way trip) - tractor trailer	8	1	8	27.50	220.0	1320	0.250	2.0	730.0
Vehicle (leaving plant) (one-way trip) - car	80	1	80	1.65	132.0	1320	0.250	20.0	7300.0

		Total	176	644.0	44.0	16060.0
Average Vehicle Weight Per Trip =	3.7	tons/trip				
Average Miles Per Trip =	0.25	miles/trip				

Unmitigated Emission Factor, Ef = [k * (sL)^0.91 * (W)^1.02] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)
W =	3.7	3.7	3.7	tons = average vehicle weight (provided by source)
sL =	0.6	0.6	0.6	g/m^2 = ubiquitous baseline silt loading value for ADT < 500 - Table 13.2.1-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)] (Equation 2 from AP-42 13.2.1)

Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]	
where p =	125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N =	365 days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.026	0.005	0.0013	lb/mile
Mitigated Emission Factor, Eext =	0.024	0.005	0.0012	lb/mile

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)
Vehicle (entering plant) (one-way trip) - tractor trailer	0.009	0.002	4.6E-04	0.009	0.002	4.3E-04
Vehicle (entering plant) (one-way trip) - car	0.095	0.019	0.005	0.087	0.017	0.004
Vehicle (leaving plant) (one-way trip) - tractor trailer	0.009	0.002	4.6E-04	0.009	0.002	4.3E-04
Vehicle (leaving plant) (one-way trip) - car	0.095	0.019	0.005	0.087	0.017	0.004
	0.208	0.042	0.010	0.191	0.038	0.009

Methodology

Total Weight driven per day (ton/day)	= [Maximum Weight Loaded (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip)	= [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/day)	= [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip)	= SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip)	= SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr)	= [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (tons/yr)	= [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Controlled PTE (tons/yr)	= [Mitigated PTE (tons/yr)] * [1 - Dust Control Efficiency]

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particle Matter (<2.5 um)
PTE = Potential to Emit

326 IAC 6-2 Evaluation

Boilers	Installation Date	Rating (MMBtu/hr)	Q (MMBtu/hr)	Pt (lb/MMBtu) (if Q <10)	Applicable Rule
Unit D	1979	2.6	2.6	0.6	326 IAC 6-2-3
Unit E	1996	1.8	4.4	0.6	327 IAC 6-2-4

$$\begin{array}{lcl}
 < 9/21/1983 & & \text{Actual} \\
 [326 \text{ IAC } 6-2-3] & \text{Pt} = \frac{C \times a \times h}{76.5 \times Q^{0.75} \times N^{0.25}} = & \frac{569.5}{186.27}
 \end{array}$$

Where: Pt = Pounds of particulate matter emitted per million Btu
 C = Maximum ground level concentration with respect to 50
 a = Plume rise factor. The value **0.67** shall be used for Q 0.67
 h = Stack height in feet. 17
 Q = Total source maximum operating capacity rating in
 N = Number of stacks in fuel burning operation. 2

(e) Particulate emissions from any facility used for indirect heating purposes which has 250 mmBtu/hr heat input or less and which began operation after June 8, 1972, shall in no case exceed 0.6 lb/mmBtu heat input.

$$\begin{array}{lcl}
 => 9/21/1983 & & \\
 [326 \text{ IAC } 6-2-4] & \text{Pt} = \frac{1.09}{Q^{0.26}} & \\
 \text{Where: Pt} & = \text{Pounds of particulate matter emitted per million Btu} & \\
 \text{Q} & = \text{Total source maximum operating capacity rating in} &
 \end{array}$$

For Q less than 10 mmBtu/hr, Pt shall not exceed 0.6.

326 IAC 6-3-2 Particulate Emission Rate Limitations

PM Control Device	Stack/Vent	Process	Process Weight, P		P ≤ 60,000 lb/hr
			each unit	each unit	E = 4.10 P ^{0.67}
			P (lb/hr)	P (ton/hr)	E (lb/hr)
Filter	C1	Silo C1	7,500	3.75	9.940
Filter	C2	Silo C2	7,500	3.75	9.940
Flour Recovery	No Stack	Mixer B1	7,700	3.85	10.117
Flour Recovery	No Stack	Mixer M1	3,400	1.70	5.850
Flour Recovery	No Stack	Mixer M2	3,060	1.53	5.452

For P ≤ 60,000 lb/hr E = 4.10 P^{0.67}

where: E = Rate of emission in pounds per hour.

P = Process weight rate in tons per hour.

**Indiana Department of Environmental Management
Office of Air Quality**

**Appendix B
Best Available Control Technology (BACT) Analysis Determination**

Source Background and Description
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Source Name:	New Horizons Baking Company
Source Location:	700 W. Water Street, Fremont, IN 46737
County:	Steuben
SIC Code:	2051 (Bread and Other Bakery Products, Except Cookies and Crackers)
Significant Source Modification No.:	151-32848-00060
Part 70 Operating Permit No.:	T151-31292-00060
Permit Reviewer:	Jason R. Krawczyk

Background Information

The Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) has performed a Best Available Control Technology (BACT) review for the the existing commercial bread baking plant of New Horizon Baking Company located at 700 W. Water Street, Fremont, Indiana 46737. The following existing emission unit was constructed after January 1, 1980, has the potential to emit volatile organic compounds greater than twenty-five (25) tons per twelve (12) consecutive month period and is not regulated under any other rule in 326 IAC 8. Pursuant to the provisions of 326 IAC 8-1-6 Best Available Control Technology, an analysis for VOC was performed for this unit:

- (a) One (1) muffin line, identified as Line B, constructed in 1983 and modified in 2008, with a maximum throughput capacity of 3,400 pounds per hour, and consisting of:
 - (1) One (1) natural gas-fired muffin griddle, identified as Unit B, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack B; and
 - (2) One (1) proof box, identified as Line B Proof Box.

Note: The muffin line is considered one facility for evaluation of 326 IAC 8-1-6.

IDEM, OAQ is performing an evaluation pursuant to the 326 IAC 8-1-6 for the existing muffin line, based on the following:

- (A) Pursuant to Minor Source Operating Permit, M151-17821-00060, issued on October 16, 2003, New Horizons Baking Company constructed the muffin line (Line B) in 1983. Although constructed after January 1, 1980, the potential emissions of VOC from the muffin griddle were initially calculated to be less than 25 tons per year. Therefore, at that time, it was determined that 326 IAC 8-1-6 did not apply to the muffin line.
- (B) Pursuant to MPR 151-26448-00060, issued on June 26, 2008, the heat input to the muffin griddle (Unit B) was increased to 5.96 MMBtu/hour and the maximum muffin production rate was increased to 4,200 lbs/hour. Based on the revised production rate, the potential VOC emissions of the muffin griddle were calculated to be greater than 25 tons/year. However, the source agreed to limit the VOC emissions from the muffin griddle to less than 25 tons/year rendering the requirements of 326 IAC 8-1-6 not applicable. New Horizons did not fully undertake the planned modification to the muffin griddle. Therefore, they have requested to correct the maximum

production capacity of the muffin line (Line B) to 3,400 lbs/hour (1.7 tons per hour) and to correct the maximum heat input capacity of Unit B to 3.70 MMBtu/hr.

- (C) IDEM, OAQ has recently been incorporating the previously unaccounted VOC emissions from proof boxes into a facility's potential to emit summary and considering a proof box and oven to be one facility. The source has agreed to utilize the average emission factor of 1.0 lb of VOC per ton of baked product determined through proof box testing performed in June 2010 at the Alpha Baking Co., Inc. facility in LaPorte, IN.
- (D) Pursuant to MPR 151-28993-00060, issued on May 10, 2010, the muffin line (Line B) was revised to clarify the existence of one (1) proof box in addition to the one (1) muffin griddle (Unit B). The limitation to avoid the applicability of 326 IAC 8-1-6 was revised to account for the proof box emissions and VOC testing was added as a new requirement.
- (E) On November 3, 2010, a stack test was performed on the muffin griddle (Unit B). Based on the stack test results, the VOC emission rate for Unit B was determined to be 3.71 lbs VOC per ton of throughput. Based on these stack test results, the potential VOC emissions from the muffin line (Line B) are as follows:

Muffin Griddle:

$$E \text{ (ton/yr)} = 3.71 \text{ lb/ton} \times 1.7 \text{ ton/hr} \times 8760 \text{ hr/yr} / 2000 \text{ lb/ton} \\ = 27.62 \text{ ton/yr}$$

Proof Box:

$$E \text{ (ton/yr)} = 1.0 \text{ lb/ton} \times 1.7 \text{ ton/hr} \times 8760 \text{ hr/yr} / 2000 \text{ lb/ton} \\ = 7.45 \text{ ton/yr}$$

Natural Gas Combustion:

$$E \text{ (ton/yr)} = 5.5 \text{ lb/MMCF} \times 3.70 \text{ MMBtu/hr} \times 8760 \text{ hr/yr} / 1020 \text{ MMBtu/MMCF} / 2000 \text{ lb/ton} \\ = 0.09 \text{ ton/yr}$$

Total VOC Emissions = 35.16 ton/yr

- (F) Since this emission rate results in potential VOC emissions greater than 25 tons per year, and the source would like the flexibility to operate at the maximum permitted capacity, the source has requested to remove the VOC BACT avoidance limit and undergo the BACT analysis for this process.

The following emission unit will be constructed after January 1, 1980, has the potential to emit volatile organic compounds greater than twenty-five (25) tons per twelve (12) consecutive month period and is not regulated under any other rule in 326 IAC 8. Pursuant to the provisions of 326 IAC 8-1-6 Best Available Control Technology, an analysis for VOC was performed for this unit:

- (a) One (1) muffin line, identified as Line H, approved in 2013 for construction, with a maximum throughput capacity of 3,060 pounds per hour, and consisting of:
- (1) One (1) natural gas-fired muffin griddle, identified as Unit H, with a maximum heat input of 3.70 MMBtu per hour, exhausting to Stack H; and
 - (2) One (1) proof box, identified as Line H Proof Box.

Note: The muffin line is considered one facility for evaluation of 326 IAC 8-1-6.

IDEM, OAQ conducts BACT analyses in accordance with the *“Top-Down” Best Available Control Technology Guidance Document* outlined in the 1990 draft U.S. EPA *New Source Review Workshop Manual*, which outlines the steps for conducting a top-down BACT analysis. Those steps are listed below.

- (1) Identify all potentially available control options;
- (2) Eliminate technically infeasible control options;
- (3) Rank remaining control technologies;
- (4) Evaluate the most effective controls and document the results; and
- (5) Select BACT.

Also in accordance with the *“Top-Down” Best Available Control Technology Guidance Document* outlined in the 1990 draft U.S. EPA *New Source Review Workshop Manual*, BACT analyses take into account the energy, environmental, and economic impacts of the control options. Emission reductions may be determined through the application of available control techniques, process design, and/or operational limitations. Such reductions are necessary to demonstrate that the emissions remaining after application of BACT will not cause adverse environmental effects to public health and the environment.

VOC BACT Analysis

Step One: Identify All Potentially Available Control Technologies

Based on the information reviewed for this BACT determination, the following potentially available control technologies were identified for controlling VOC emissions, which are primarily emitted in the form of ethanol, from the baking line:

(a) Catalytic Oxidizer:

Catalytic oxidation is the process of oxidizing organic contaminants in a waste gas stream within a heated chamber containing a catalyst bed in the presence of oxygen for sufficient time to completely oxidize the organic contaminants to carbon dioxide and water. The catalyst is used to lower the activation energy of the oxidation reaction. The residence time, temperature, flow velocity and mixing, the oxygen concentration, and type of catalyst used in the combustion chamber affect the oxidation rate and destruction efficiency. Catalytic oxidizers typically require combustion of an auxiliary fuel (e.g., natural gas) to maintain combustion chamber temperature high enough to completely oxidize the contaminant gases. Catalytic oxidizers operate at lower temperatures and require less fuel than thermal oxidizers, they have a smaller footprint, and they need little or no insulation. Catalytic oxidizers are typically designed to have a residence time of 0.5 seconds or less and combustion chamber temperatures between 600 and 1,200°F. The types of catalysts used include platinum, platinum alloys, copper chromate, copper oxide, chromium, manganese, and nickel. These catalysts are deposited in thin layers on an inert substrate, usually a honeycomb shaped ceramic.

The two types of catalytic oxidation systems include recuperative and regenerative catalytic oxidizers, which are differentiated by the type of heat recovery equipment used. In a recuperative catalytic oxidizer, the waste gas stream is preheated using the heat content of the treated gas stream, resulting in improved oxidizer efficiency and significant fuel cost savings. In a regenerative thermal oxidizer, a high-density media such as a packed ceramic bed, which was heated in a previous cycle, is used to preheat the incoming waste gas stream, resulting in improved oxidizer efficiency and significant fuel cost savings. VOC destruction efficiencies greater than 98% are achievable under certain operating conditions (EPA-453/R-92-017). However, based on the information reviewed for this BACT determination, a VOC destruction

efficiency of 95% or a VOC outlet concentration of 10 ppmv or less is achievable on a consistent basis under normal operational conditions for a typical bread baking operation.

(b) Thermal Oxidizer:

Thermal oxidation is the process of oxidizing organic contaminants in a waste gas stream by raising the temperature above the auto-ignition point in the presence of oxygen for sufficient time to completely oxidize the organic contaminants to carbon dioxide and water. The residence time, temperature, flow velocity and mixing, and the oxygen concentration in the combustion chamber affect the oxidation rate and destruction efficiency. Thermal oxidizers typically require combustion of an auxiliary fuel (e.g., natural gas) to maintain combustion chamber temperature high enough to completely oxidize the contaminant gases. Thermal oxidizers are typically designed to have a residence time of one second or less and combustion chamber temperatures between 1,200 and 2,000°F.

The three types of thermal oxidation systems include direct flame, recuperative, and regenerative thermal oxidizers, which are differentiated by the type of heat recovery equipment used. A direct flame thermal oxidizer consists of only a combustion chamber with no heat recovery equipment. In a recuperative thermal oxidizer, the waste gas stream is preheated using the heat content of the treated gas stream, resulting in improved oxidizer efficiency and significant fuel cost savings. In a regenerative thermal oxidizer, a high-density media such as a packed ceramic bed, which was heated in a previous cycle, is used to preheat the incoming waste gas stream, resulting in improved oxidizer efficiency and significant fuel cost savings. In general, thermal oxidizers are less efficient at treating waste gas streams with highly variable flow rates since the variable flow rate results in varying residence times, combustion chamber temperature, and poor mixing. VOC destruction efficiencies greater than 98% are achievable under certain operating conditions (EPA-453/R-92-017). However, a VOC destruction efficiency of 95% is achievable on a consistent basis under normal operational conditions for a typical bakery operation.

(c) Wet Packed Bed Scrubber:

A wet packed bed scrubber is an absorption system in which a waste gas stream is interacted with a scrubbing liquid inside a contact chamber containing a bed of packing media in order to strip contaminant gases from the waste gas stream through the process of dissolution. Water is the most commonly used scrubbing liquid. Other solvents may be used depending on the components of the waste gas stream. Based on information reviewed for this BACT determination, a VOC destruction efficiency of 81% is achievable on a consistent basis under normal operational conditions for a typical bakery operation.

(d) Biofiltration:

Biofiltration is a process in which a waste gas stream is passed through a bed of peat, compost, bark, soil, gravel, or other inorganic media in order to strip organic contaminant gases from the waste gas stream through the process of dissolution in the bed moisture and adsorption to the bed media. Under aerobic conditions, microorganisms naturally present in the bed oxidize the organic contaminant gases within the bed to carbon dioxide, water, and additional biomass through metabolic processes. If the temperature of the waste gas stream is too high, the gas stream must be cooled to an optimum temperature before it can be treated in the biofilter in order to maintain the viability of the microorganisms. In addition, the bed must be monitored and maintained at an optimum moisture content and pH in order to prevent cracking of the bed media and to maintain the viability of the microorganisms.

(e) Carbon Adsorption Unit:

Carbon adsorption is a process by which VOC is retained on a granular carbon surface, which is highly porous and has a very large surface-to-volume ratio. Carbon adsorption systems can

operate in two phases: adsorption and desorption. Adsorption is rapid and removes most of the VOCs in the stream. Eventually, the adsorbent becomes saturated with the vapors and the system's efficiency drops. The adsorbent must be regenerated or replaced soon after efficiency begins to decline. In regenerative systems, the adsorbent is reactivated with steam or hot air in order to desorb the adsorbate (VOC vapors) from the adsorbent, and the adsorbate and regenerated adsorbent can be recovered for reuse or disposal. Non-regenerative systems require the removal of the spent adsorbent and replacement with fresh adsorbent.

(6) Condensation Unit:

Condensation is the process by which the temperature of the waste gas stream is lowered to below the dew points of the contaminants gases in waste gas. A refrigeration condenser normally provides VOC control efficiency greater than 90%.

Step Two: Eliminate Technically Infeasible Control Options

Based on the information reviewed for this BACT determination, IDEM, OAQ has determined that the use of carbon adsorption, condensation, and biofiltration systems are not technically feasible options for this source for the following reasons:

- (a) Based on the information reviewed for this BACT determination, the use of a biofiltration system is infeasible because the high temperature exhaust stream from the oven would inhibit microbiological activities. The outlet temperature of the ovens would exceed those in the required temperature range for mesophilic bacteria (nominally less than 106° F) and would kill off the microbes. Additionally, during the periods that the oven is shut-down for normal cleaning operations, the biofiltration system would have to be artificially fed in order to maintain system acclimation. Therefore, this technology is not technically feasible, and no further evaluation will be made.
- (b) Based on the information reviewed for this BACT determination, the use of carbon adsorption is infeasible because fats and oils in the oven exhaust clog carbon pores. In addition, the ethanol is difficult to strip from the carbon. Therefore, this technology is not technically feasible, and no further evaluation will be made.
- (c) Based on the information reviewed for this BACT determination, the condensation method is infeasible because of the low VOC concentrations and high air flows, temperatures, and moisture content in the oven exhaust. In addition, the fats and oils contained in the exhaust reduce the control efficiency and create sanitation concerns. Therefore, this technology is not technically feasible, and no further evaluation will be made.

The following table summarizes other BACT determinations at similar sources or for similar processes that were identified in the EPA's RACT/BACT/LAER Clearinghouse (RBLC) under Process Type Code 70.550 (Bakeries and Snack Food), as well as IDEM, OAQ permits issued to date. The BACT determinations are arranged in descending order in terms of issuance date.

Company/ Location	Year Issued	Process Description	Control Device	BACT Emission Limits/Requirements	Reference
Allen Foods, Inc. Elkhart, IN	2013	Bakery Ovens (Bread Line 028) (Bun Line 048)	Catalytic Oxidizer	<p>The VOC emissions from the baking oven 028 and baking oven 048 shall be controlled by a single catalytic oxidizer (029).</p> <p>The overall VOC control efficiency for the catalytic oxidizer (including capture efficiency and destruction efficiency) shall be at least 95%, or the VOC outlet concentration shall not exceed 10 ppmv.</p> <p>The combined VOC emissions from baking oven 028 and the bun line baking oven (048), jointly controlled by catalytic oxidizer 029 and exhausting through vent S17, shall not exceed 4.30 lbs/hr.</p> <p>The Permittee shall operate bread line (Line 028) (consisting of the baking oven and proof box) in accordance with the manufacturer's design and operating specifications.</p> <p>The Permittee shall operate the bun line (Line 048) (consisting of the baking oven and proof box) in accordance with the manufacturer's design and operating specifications.</p> <p>The source shall perform proof box cleaning operations for the proof box associated with Bread Line 028 on a weekly cleaning schedule in accordance with their Sanitation Standard Operating Procedures (SSOP).</p> <p>The source shall perform proof box cleaning operations for the proof box associated with Bun Line 048 on a weekly cleaning schedule in accordance with their Sanitation Standard Operating Procedures (SSOP).</p>	<p>Indiana Federally Enforceable State Operating Permit Significant Permit Revision</p> <p>SPR 039-32174-00643</p>

Company/ Location	Year Issued	Process Description	Control Device	BACT Emission Limits/Requirements	Reference
Hartford Bakery, Inc. Evansville, IN	2012	Bun Production Line (Line 3)	None	VOC emission shall be limited to 46.7 tons per twelve (12) consecutive month period. The source shall operate the proof box in accordance with manufacturer's and operating specifications. The source shall perform proof box cleaning operations for the proof box on a tiered cleaning schedule in accordance with their Sanitation Standard Operating Procedures (SSOP).	RBLC ID: IN 0148 Indiana Part 70 Significant Source Modification SSM 163-31953- 00040
Maplehurst Bakeries, Inc. Brownsburg, IN	2012	Donut Fryer 6 (Donut Production Line - Moline VI)	None	VOC emission shall be limited to 40.1 tons per twelve (12) consecutive month period. The source shall operate the proof box in accordance with manufacturer's and operating specifications. The source shall perform proof box cleaning operations for the proof box on a tiered cleaning schedule in accordance with their Sanitation Standard Operating Procedures (SSOP).	RBLC ID: IN-0134 Indiana Part 70 Significant Source Modification SSM 063-31357- 00031
Maplehurst Bakeries, Inc. Brownsburg, IN	2012	Donut Fryer 8 (Donut Production Line - Moline VIII)	None	VOC emission shall be limited to 60.7 tons per twelve (12) consecutive month period. The source shall operate the proof box in accordance with manufacturer's and operating specifications. The source shall perform proof box cleaning operations for the proof box on a tiered cleaning schedule in accordance with their Sanitation Standard Operating Procedures (SSOP).	RBLC ID: IN-0134 Indiana Part 70 Significant Source Modification SSM 063-31357- 00031

Company/ Location	Year Issued	Process Description	Control Device	BACT Emission Limits/Requirements	Reference
Allen Foods, Inc. Elkhart, IN	2012	Bakery Oven (Bread Line 028)	Catalytic Oxidizer	<p>VOC emissions from the bread oven shall be controlled by a catalytic oxidizer.</p> <p>Overall VOC efficiency of the catalytic oxidizer shall be 95%, or the VOC outlet concentration shall not exceed 10 ppmv.</p> <p>VOC emissions shall not exceed 2.29 lbs/hr.</p> <p>The source shall operate the proof box in accordance with manufacturer's and operating specifications.</p> <p>The source shall perform proof box cleaning operations for the proof box on a tiered cleaning schedule in accordance with their Sanitation Standard Operating Procedures (SSOP).</p>	<p>RBLC ID: IN-0124</p> <p>Indiana Federally Enforceable State Operating Permit</p> <p>SPR 039-29392-00643</p>
The Kroger Company - Indianapolis Bakery Indianapolis, IN	2012	Bakery Oven (Bun Line BU4)	Catalytic Oxidizer	<p>VOC emissions from the bun oven shall be controlled by a catalytic oxidizer.</p> <p>Overall VOC efficiency of the catalytic oxidizer shall be 95%, or the VOC outlet concentration shall not exceed 10 ppmv.</p> <p>VOC emissions from the bun oven shall not exceed 2.75 pounds per hour.</p> <p>The source shall operate the proof box in accordance with manufacturer's and operating specifications.</p> <p>The source shall perform proof box cleaning operations for the proof box on a tiered cleaning schedule in accordance with their Sanitation Standard Operating Procedures (SSOP).</p>	<p>Indiana Federally Enforceable State Operating Permit Significant Permit Revision</p> <p>F097-29287-00161</p>

Company/ Location	Year Issued	Process Description	Control Device	BACT Emission Limits/Requirements	Reference
White Castle Systems, Inc. Rensselaer, IN	2011	Bakery Oven/ Proof Box	Catalytic Oxidizer	<p>VOC emission from the bread baking oven shall be controlled by a catalytic oxidizer.</p> <p>Overall VOC efficiency of the catalytic oxidizer shall be 95%, or the VOC outlet concentration shall not exceed 10 ppmv.</p> <p>VOC emissions from the bread oven shall not exceed 0.54 lbs/hr</p> <p>The source shall operate the proof box in accordance with manufacturer's and operating specifications.</p> <p>The source shall perform proof box cleaning operations for the proof box on a tiered cleaning schedule in accordance with their Sanitation Standard Operating Procedures (SSOP).</p>	<p>RBLC ID: IN-0128</p> <p>Indiana Minor Source Operating Permit</p> <p>M073-29819-00039</p>
Alpha Baking Co., Inc. LaPorte, IN	2011	Bakery Ovens Proof Boxes	Catalytic Oxidizer	<p>VOC emission from the baking ovens shall be controlled by a catalytic oxidizer.</p> <p>Overall VOC efficiency of the catalytic oxidizer shall be 95%, or the VOC outlet concentration shall not exceed 10 ppmv.</p> <p>The source shall operate the proof boxes in accordance with manufacturer's and operating specifications.</p> <p>The source shall perform proof box cleaning operations for the proof boxes on tiered cleaning schedules in accordance with their Sanitation Standard Operating Procedures (SSOP).</p>	<p>RBLC ID: IN-0132</p> <p>Indiana Federally Enforceable State Operating Permit</p> <p>F091-28222-00135</p>
Harlan Bakeries, Inc. Avon, IN	2008	Bakery Oven	Catalytic Oxidizer	<p>VOC emissions from the bagel oven shall be controlled by a catalytic oxidizer.</p> <p>Overall VOC efficiency of the catalytic oxidizer shall be 95%, or the VOC outlet concentration shall not exceed 10 ppmv.</p> <p>VOC emissions shall not exceed 0.36 lbs/hr.</p>	<p>Indiana Minor Source Operating Permit</p> <p>M063-24103-00059</p>

Company/ Location	Year Issued	Process Description	Control Device	BACT Emission Limits/Requirements	Reference
Allen Foods, Inc. Elkhart, IN	2006	Bakery Oven	Catalytic Oxidizer	VOC emissions from the bread oven shall be controlled by a catalytic oxidizer. Overall VOC efficiency of the catalytic oxidizer shall be 95%, or the VOC outlet concentration shall not exceed 10 ppmv. VOC emissions shall not exceed 2.29 lbs/hr.	RBLC ID: IN-0120 Indiana Federally Enforceable State Operating Permit F039-22633-00643
Holsum of Fort Wayne, Inc. Fort Wayne, IN	2005	Bakery Oven	None	VOC emission shall be limited to 60 tons per twelve (12) consecutive month period	Indiana Part 70 Significant Source Modification SSM 091-27352- 00106
The Kroger Company - Indianapolis Bakery Indianapolis, IN	2003	Bakery Oven and Chain Lubricant (Bread Line BD1)	None	VOC emissions shall not exceed 49.0 tons per thirteen (13) consecutive twenty-eight (28) day period.	Indiana Federally Enforceable State Operating Permit Significant Permit Revision F097-16909-00161
Maple Leaf Bakery CA	1998	Bakery Oven	Catalytic Oxidizer	92 % Destruction Removal Efficiency Minimal 600°F Operating Temperature	RBLC ID: CA-0854 Permit No.: 0473-170
Freund Baking Company CA	1997	Bakery Oven	Catalytic Oxidizer	95.4 % Destruction Removal Efficiency	RBLC ID: CA-0859 Permit No.: 328570
Interstate Brands Corporation Indianapolis, IN	1997	Combined Bakery Ovens and Chain Lubricant	None	VOC emissions shall not exceed 95 tons per thirteen (13) consecutive twenty-eight (28) day period.	Indiana Federally Enforceable State Operating Permit F097-7413-00171
Holsum Bakery, Inc. AZ	1996	Bakery Oven	Quencher / Scrubber	81 % Control Efficiency 49.9 tons per year	RBLC ID: AZ-0029 Permit No.:95-0432
KBI, Inc. Morristown, IN	1996	Dough Mixing, Fermentation, and Baking Area	None	VOC emissions shall not exceed a total of 99.9 tons per twelve (12) consecutive month period	Indiana Federally Enforceable State Operating Permit F145-15375-00037
Certified Grocers of California, Ltd CA	1990	Bakery Oven	Catalytic Afterburner	95% Control Efficiency	RBLC ID: CA-0468 Permit Nos.: 228274, 219899
Automatic Rolls of Virginia, Inc. VA	1988	Bakery Oven	None	13.80 pounds per hour 23.00 tons per year	RBLC ID: VA-0110 Permit No.: (7)40761

Step Three: Rank Remaining Control Technologies by Control Effectiveness

The remaining technically feasible options for controlling VOC emissions from the muffin line (Line H) are as follows (listed in descending order of most technically feasible):

Options for VOC Control	Control Efficiency (%)
Catalytic Oxidizer	95%
Thermal Oxidizer	95%
Wet Packed Bed Scrubber	81%

IDEM, OAQ is aware that that the above control technologies may be able to periodically achieve control efficiencies that exceed 95% under certain operating conditions. However, BACT must be achievable on a consistent basis under normal operational conditions. BACT limitations do not necessarily reflect the highest possible control efficiency achievable by the technology on which the emission limitation is based. The permitting authority has the discretion to base the emission limitation on a control efficiency that is somewhat lower than the optimal level. There are several reasons why the permitting authority might choose to do this. One reason is that the control efficiency achievable through the use of the technology may fluctuate so that it would not always achieve its optimal control efficiency. In that case, setting the emission limitation to reflect the highest control efficiency would make violations of the permit unavoidable. To account for this possibility, a permitting authority must be allowed a certain degree of discretion to set the emission limitation at a level that does not necessarily reflect the highest possible control efficiency, but will allow the Permittee to achieve compliance consistently. While we recognize that greater than 95% may be achievable as an average during testing, IDEM, OAQ allows for sources to include a safety factor, or margin of error, to allow for minor variations in the operation of the emission units and the control device.

Step Four: Evaluate Top Control Alternatives

Further evaluation including economic, energy and environmental impacts are required for controlling VOC emissions from the muffin line (Line H). Annualized costs were determined in accordance with the EPA guidance (EPA's Office of Air Quality Planning and Standards Control Cost Manual), with other relevant information provided by the respective equipment vendors, inputs from plant personnel, and engineering judgment.

(a) Catalytic Oxidizer

The source proposed three possibilities for controlling potential VOC emissions from the muffin lines (Line B and Line H):

(1) Control the Proof Box and Muffin Griddle:

The first option evaluated was to control the combined VOC emissions from the proof boxes and the natural gas-fired muffin griddles. Options evaluated included controlling Line B only, Line H only, and both Line B and Line H. This option would include the installation of a clean room surrounding the proof box as well as the conveyor system between the proof box and the griddle. Additional air handlers would be required to direct airflow to a catalytic oxidizer, which would be installed after the griddle.

(2) Control the Proof Box Only:

The second option evaluated was to control VOC emissions from only the proof box. Options evaluated included controlling Line B proof box only, Line H proof box only, and both Line B and Line H proof boxes. This option would include the installation of clean room surrounding the proof box as well as the conveyor system between the proof box and the griddle. Additional air handlers would be required to direct airflow to a catalytic oxidizer.

(3) Control the Muffin Griddle Only:

The third option evaluated was to control the VOC emissions from only the natural gas-fired muffin griddle. Options evaluated included controlling Line B muffin griddle only, Line H muffin griddle only, and both Line B and Line H muffin griddles. This option would include the installation of a catalytic oxidizer to control emissions from only the griddle.

Note: The cost benefit analyses, included as Appendix C, evaluate the costs associated with using a single catalytic oxidizer to control the emission units associated with Line B, using a single catalytic oxidizer to control emission units associated with Line H, and using a single catalytic oxidizer to control emission units associated with both Line B and Line H.

(b) Thermal Oxidizer

Based on information reviewed for this BACT determination, the costs associated with installing a thermal oxidizer were not evaluated since the cost of the technology is higher than that of a catalytic oxidizer. A thermal oxidizer would require a higher operating temperature and more fuel than a catalytic oxidizer, thus increasing the costs associated with this control method. Therefore, no further evaluation will be made.

(c) Wet Packed Bed Scrubber

Based on information reviewed for this BACT determination, the costs associated with installing a wet packed bed scrubber were not evaluated since the cost of the technology is significantly higher than that of a catalytic oxidizer. A wet scrubber would require substantial amounts of water requiring treatment at a wastewater treatment plant (WWTP). VOCs could potentially volatilize from the wastewater during the transference or conveyance to the WWTP, as well as, during treatment at the WWTP. To avoid this problem, the sewage system and WWTP would need to be designed to minimize the volatilization of VOCs or capture and control VOCs emitted the ambient air. Therefore, no further evaluation will be made.

Pursuant to Section IV.D.2.c of EPA's BACT Guidance Document, costs that are within the range of normal costs for a control method may be reviewed in comparison to similar sources. This comparison may allow for the elimination of a technologically- and otherwise economically-feasible control option, provided that the costs of pollutant removal for the subject source are unduly high when compared to the costs borne by sources in recent BACT determinations.

The technologically-feasible options for controlling VOC emissions from the bakery lines and the costs estimated for New Horizons Baking Company to purchase and operate the control device(s) is summarized in Appendix C.

Facility	Cost for Controlling VOCs from Entire Line(s) (Proof Box* & Muffin Griddle)	Cost for Controlling VOCs from Proof Box(es)* Only	Cost for Controlling VOCs from Muffin Griddle(s) Only
	(\$ / Ton Removed)	(\$ / Ton Removed)	(\$ / Ton Removed)
Muffin Line (Line B)	\$15,903	\$75,092	\$11,160
Muffin Line (Line H)	\$16,838	\$79,526	\$11,953
Muffin Lines (Line B & Line H)	\$13,150	\$62,100	\$7,482
Note: *Costs associated with controlling proof boxes are theoretical. These types of facilities have never been required to control VOC emissions.			

(a) Cost Analyses for Controlling the Muffin Griddles and Proof Boxes with a Catalytic Oxidizer:

- (1) The cost associated with controlling the combined 35.16 tons of VOC emitted from Line B's muffin griddle (Unit B) and proof box (Line B Proof Box) has been determined to be \$15,903 per ton of VOC removed, using a single catalytic oxidizer.
- (2) The cost associated with controlling the combined 31.65 tons of VOC emitted from Line H's muffin griddle (Unit H) and proof box (Line H Proof Box) has been determined to be \$16,838 per ton of VOC removed, using a single catalytic oxidizer.
- (3) The cost associated with controlling the combined 66.81 tons of VOC emitted from both the Line B and Line H muffin lines (consisting of Unit B, Unit H, Line B Proof Box, and Line H Proof Box) has been determined to be \$13,150 per ton of VOC removed, using a single catalytic oxidizer.

Note: The VOC emissions from natural gas combustion are included in the tonnages of VOC listed above.

(b) Cost Analyses for Controlling Only the Proof Boxes with a Catalytic Oxidizer:

- (1) The cost associated with controlling the 7.45 tons of VOC emitted from only the Line B Proof Box has been determined to be \$75,092 per ton of VOC removed, using a single catalytic oxidizer.
- (2) The cost associated with controlling the 6.70 tons of VOC emitted from only the Line H Proof Box has been determined to be \$79,526 per ton of VOC removed, using a single catalytic oxidizer.
- (3) The cost associated with controlling the combined 14.15 tons of VOC emitted from both the proof boxes (Line B Proof Box and Line H Proof Box) has been determined to be \$62,100, using a single catalytic oxidizer.

(c) Cost Analyses for Controlling Only the Muffin Griddles with a Catalytic Oxidizer:

- (1) The cost associated with controlling the 27.71 tons of VOC emitted from only the Line B muffin griddle (Unit B) has been determined to be \$11,160 per ton of VOC removed, using a single catalytic oxidizer.
- (2) The cost associated with controlling the 24.95 tons of VOC emitted from only the Line H muffin griddle (Unit H) has been determined to be \$11,953 per ton of VOC removed, using a single catalytic oxidizer.
- (3) The cost associated with controlling the combined 52.66 tons of VOC emitted from both the Line B and Line H muffin griddles (Unit B and Unit H) has been determined to be \$7,482 per ton of VOC removed, using a single catalytic oxidizer.

Note: The VOC emissions from natural gas combustion are included in the tonnages of VOC listed above.

The source proposes that requiring add-on controls for the muffin griddles and/or proof boxes would place them at a significant economic disadvantage in the baking industry. The source proposes to operate the each muffin line, consisting of a muffin griddle and proof box, in accordance with the manufacturer's design and operating specifications, and to sanitize the proof boxes in accordance with accepted industry procedures and practices along with Food and Drug Administration requirements.

Step Five: Select BACT

IDEM, OAQ has determined that the best available control technology (BACT) to control VOC emissions from the muffin lines (Line B and Line H), shall be as follows:

Muffin Line (Line B)

- (a) VOC emissions from the muffin line, identified as Line B (consisting of the muffin griddle (Unit B) and the proof box (Line B Proof Box)), shall not exceed 35.16 tons per twelve (12) consecutive month period.
- (b) The source shall operate Line B (consisting of the muffin griddle (Unit B) and proof box (Line B Proof Box)) in accordance the manufacturer's design and operating specifications.
- (c) In order to ensure proper operation and to minimize potential emissions, the source shall perform proof box cleaning operations for the proof box (Line B Proof Box) and perform at a minimum, the following operations, or their equivalent, in accordance with their Sanitation Standard Operating Procedure:

Weekly Cleaning Procedure:

- (1) Clean inner housing top and bottom using a hand brush and knife scraper;
- (2) Clean inner conveyor shafts and bearing housings. Use a clean cloth for removal of residual debris and any bearing over lubrication;
- (3) Clean inner door ledge framework using a hand brush and clean cloth;
- (4) Wash inner housing;
- (5) Wash inner conveyor shafts and bearing housings;
- (6) Wash inner door ledge framework;
- (7) Clean debris from lower proofer doors using a hand brush and clean cloth. If there are problem areas on the doors, a knife scraper can be used to remove encrusted debris.
- (8) Wash lower proofer doors.

Muffin Line (Line H)

- (a) VOC emissions from the muffin line, identified as Line H (consisting of the muffin griddle (Unit H) and the proof box (Line H Proof Box)), shall not exceed 31.65 tons per twelve (12) consecutive month period.
- (b) The source shall operate Line H (consisting of the muffin griddle (Unit H) and proof box (Line H Proof Box)) in accordance the manufacturer's design and operating specifications.
- (c) In order to ensure proper operation and to minimize potential emissions, the source shall perform proof box cleaning operations for the proof box (Line H Proof Box) and perform at a minimum, the following operations, or their equivalent, in accordance with their Sanitation Standard Operating Procedure:

Weekly Cleaning Procedure:

- (1) Clean inner housing top and bottom using a hand brush and knife scraper;
- (2) Clean inner conveyor shafts and bearing housings. Use a clean cloth for removal of residual debris and any bearing over lubrication;
- (3) Clean inner door ledge framework using a hand brush and clean cloth;
- (4) Wash inner housing;
- (5) Wash inner conveyor shafts and bearing housings;
- (6) Wash inner door ledge framework;
- (7) Clean debris from lower proofer doors using a hand brush and clean cloth. If there are problem areas on the doors, a knife scraper can be used to remove encrusted debris.
- (8) Wash lower proofer doors.

Compliance with the above limits and conditions will satisfy the requirements of 326 IAC 8-1-6 (BACT).

IDEM, OAQ Contact

Questions regarding this BACT Analysis can be directed to Jason R. Krawczyk at the Indiana Department Environmental Management, Office of Air Quality, 100 North Senate Avenue, MC 61-53, Room 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5174 or toll free at 1-800-451-6027 extension 4-5174.

Appendix C: Cost Analyses for Control Devices
Controlling the Muffin Line (Line B)

Company Name: New Horizons Baking Company
Address City IN Zip: 700 W. Water Street, Fremont, Indiana 46737
Part 70 Operating Permit Number: T151-31292-00060
Significant Source Modification No.: 151-32848-00060
Reviewer: Jason R. Krawczyk
Date: February 25, 2013

Controlling Emissions from the Muffin Line (Line B)			Units Controlled			Notes
			Option 1 Proof Box and Muffin Griddle	Option 2 Proof Box Only	Option 3 Muffin Griddle Only	
DIRECT COST (Pollution Control Equipment)	Miscellaneous	Unit Cost	TOTAL (\$)	TOTAL (\$)	TOTAL (\$)	
Direct Purchased Equipment						
Equipment Total (A)	A =		\$ 1,300,788.84	\$ 1,300,788.84	\$ 545,288.84	Capital Cost for catalytic oxidizer based Hartford Bakery BACT analysis* Option 1: Equipment total includes catalytic oxidizer and clean room Option 2: Equipment total includes catalytic oxidizer and clean room Option 3: Equipment total includes catalytic oxidizer only
Instrumentation	0.10 A	Included	Included	Included	Included	Included in Hartford Bakery quote*
Sales Taxes	0.07 A	\$91,055	\$91,055	\$91,055	\$38,170	Indiana sales tax
Freight	0.05 A	Included	Included	Included	Included	Included in Hartford Bakery quote*
Total Equipment Costs (B)	B =		\$1,391,844	\$1,391,844	\$583,459	
Direct Installation Cost						
Foundation and Support	0.08 B	\$111,348	\$111,348	\$46,677		EPA Control Cost Manual
Handling and Erection	0.14 B	\$194,858	\$194,858	\$81,684		EPA Control Cost Manual
Piping	0.02 B	\$27,837	\$27,837	\$11,669		EPA Control Cost Manual
Insulation	0.01 B	\$13,918	\$13,918	\$5,835		EPA Control Cost Manual
Electrical	0.04 B	\$55,674	\$55,674	\$23,338		EPA Control Cost Manual
Site Preparation	SP	\$0	\$0	\$0		No costs assumed associated with site preparation (conservative assumption)
Other (Painting)	0.01 B	\$13,918	\$13,918	\$5,835		EPA Control Cost Manual
Total Direct Installation Costs			\$417,553	\$417,553	\$175,038	
TOTAL Direct Investment (TDI) = (Total Equipment Cost + Total Direct Installation Cost)	TDI =		\$1,809,397	\$1,809,397	\$758,497	
Indirect Installation Costs						
Engineering and Supervision	0.10 B	\$139,184	\$139,184	\$58,346		EPA Control Cost Manual
Lost Production (for Retrofit Situations Only)		\$0	\$0	\$0		Conservatively assume no lost production
Construction and Field Expenses	0.05 B	\$69,592	\$69,592	\$29,173		EPA Control Cost Manual
Contractor Fees	0.10 B	\$139,184	\$139,184	\$58,346		EPA Control Cost Manual
Start-up	0.02 B	\$27,837	\$27,837	\$11,669		EPA Control Cost Manual
Performance Tests	0.01 B	\$13,918	\$13,918	\$5,835		EPA Control Cost Manual
Overall Contingencies	0.03 B	\$41,755	\$41,755	\$17,504		EPA Control Cost Manual
Total Indirect Installation Costs (TIC)	TIC =		\$431,472	\$431,472	\$180,872	
TOTAL CAPITAL INVESTMENT (TCI) = (TDI +TIC)	TCI =		\$2,240,869	\$2,240,869	\$939,369	
ANNUAL OPERATION & MAINTENANCE						
Direct Operating Costs (DA)						
Operating Labor	0.5 hr/shift \$26.46	\$14,447	\$14,447	\$14,447		Cost per hour based on Hartford Bakery BACT analysis*
Supervisor	15% of operator 0.15	\$2,167	\$2,167	\$2,167		EPA Control Cost Manual
Maintenance Labor	0.5 hr/shift \$34.17	\$18,657	\$18,657	\$18,657		Cost per hour based on Hartford Bakery BACT analysis*
Maintenance Parts	100% of Labor	\$18,708	\$18,708	\$18,708		EPA Control Cost Manual
Gas (Equipment Ratings)	\$8.256/mmbtu	\$20,395	\$20,395	\$20,395		Utility costs are based on Hartford Bakery's quote for a catalytic oxidizer. A catalytic oxidizer installed on New Horizons Line B would need to be sized for a higher air flow than the Hartford catalytic oxidizer. Therefore gas and electric costs would be higher for New Horizons and these estimates are conservative*
Electricity (Equipment Ratings)	\$0.0742/kwh	\$17,030	\$17,030	\$17,030		
Water		\$0	\$0	\$0		
Water Surcharge		\$0	\$0	\$0		No costs associated with water for catalytic oxidizer
Replacement Parts		\$0	\$0	\$0		No costs associated with water surcharge
Total Direct Operating Costs (DA)	DA =		\$91,404	\$91,404	\$91,404	No costs associated with replacement parts (including catalyst) conservatively assumed for this analysis
Indirect Operating Costs (IC)						
Overhead	60% of sum of operating, maintenance labor and materials	\$31,087	\$31,087	\$31,087		EPA Control Cost Manual
Administrative Charges	0.02 TCI	\$44,817	\$44,817	\$18,787		EPA Control Cost Manual
Property Tax	0.01 TCI	\$22,409	\$22,409	\$9,394		EPA Control Cost Manual
Insurance	0.01 TCI	\$22,409	\$22,409	\$9,394		EPA Control Cost Manual
Capital Recovery Cost Factor (Assumes 7% interest over 10 years)	$[i*(1+i)^n]/[(1+i)^n-1]$ 0.1424	\$319,049	\$319,049	\$133,745		EPA Control Cost Manual
Capital Recovery Cost	Factor * (TCI- 1.08(Catalyst Costs) 0.1424					
Total Indirect Operating Costs (IA)	IA =		\$120,722	\$120,722	\$68,662	Catalyst costs conservatively assumed to be \$0.
Heat Recovery Credits		\$0	\$0	\$0		No Heat Recovery Credits assumed for this analysis
Total Operating Costs (DA + IA - Heat Recovery Credits)	TOC =		\$212,126	\$212,126	\$160,066	
Total Annualized Cost (Capital Recovery Cost + TOC)	TAC =		\$531,175	\$531,175	\$293,811	
Tons VOC PTE =		35.16	7.45	27.71		Option 1 = Emissions from muffin griddle, proof box, and natural gas combustion. Option 2 = Emissions from proof box. Option 3 = Emissions from muffin griddle and natural gas combustion
Tons VOC Removed @ 95% =		33.40	7.07	26.33		
Cost per Ton VOC Removed (TAC / Tons VOC Removed) =		\$15,903	\$75,092	\$11,160		

Notes

*Costs based Hartford Bakery (Evansville, IN) BACT analysis (see Significant Source Modification No. 163-31953-00040 issued August 21, 2012). For this BACT analysis, the capital cost of the catalytic oxidizer was adjusted based on the air flow rates.

\$280,700 Hartford capital cost estimate
4,000 scfm, air flow of catalytic oxidizer in Hartford quote
10,969 scfm, air flow rate of the muffin griddle stack at New Horizons Baking Company

The cost of a catalytic oxidizer for New Horizons is calculated using the sixth tenths rule or "power rule" which is a technique for scaling cost data as provided in the following Ohio EPA guidance document:
<http://www.epa.state.oh.us/portals/27/engineer/eguides/guide46.pdf>
\$ 514,169.89 Cost in 2010 dollars for a catalytic oxidizer
218.1 CPI for 2010
231.3 CPI through October 2012
Consumer Price Index Values were obtained from the following site
[U.S. Department Of Labor - Bureau of Labor Statistics, Consumer Price Index, ftp://ftp.bls.gov/pub/special.requests/cpi/cpi.txt](http://ftp.bls.gov/pub/special.requests/cpi/cpi.txt)
\$ 545,288.84 Capital cost of catalytic oxidizer in 2012 dollars

The cost of the clean room is based on \$/square foot. New Horizons estimates that 2,700 sq ft would be necessary to enclose the proof box on the muffin line. The following site is used to estimate the cost of the clean room:
http://www.idc-ch2m.com/services/cleanroom/cleanroom_cost.asp
\$755,500 cost of class 1000 clean room that is 2,700 sq ft

EPA Control Cost Manual factors are from Section 3.2 VOC Destruction Controls Chapter 2, Table 2.8 for Incinerators of the Sixth Edition of the EPA Air Pollution Control Cost Manual (January 2002)
http://www.epa.gov/ttnecat1/dir1/c_allchs.pdf

Appendix C: Cost Analyses for Control Devices
Controlling the Muffin Line (Line H)

Company Name: New Horizons Baking Company
Address City IN Zip: 700 W. Water Street, Fremont, Indiana 46737
Part 70 Operating Permit Number: T151-31292-00060
Significant Source Modification No.: 151-32848-00060
Reviewer: Jason R. Krawczyk
Date: February 25, 2013

Controlling Emissions from the Muffin Line (Line H)			Units Controlled			Notes
			Option 1 Proof Box and Oven	Option 2 Proof Box Only	Option 3 Oven Only	
DIRECT COST (Pollution Control Equipment)	Miscellaneous	Unit Cost	TOTAL (\$)	TOTAL (\$)	TOTAL (\$)	
Direct Purchased Equipment						
		A =	\$ 1,221,584.66	\$ 1,221,584.66	\$ 511,884.66	Capital Cost for catalytic oxidizer based Hartford Bakery BACT analysis*
Equipment Total (A)						Option 1: Equipment total includes catalytic oxidizer and clean room
Instrumentation	0.10	A	Included	Included	Included	Option 2: Equipment total includes catalytic oxidizer and clean room
Sales Taxes	0.07	A	\$85,511	\$85,511	\$35,832	Option 3: Equipment total includes catalytic oxidizer only
Freight	0.05	A	Included	Included	Included	Included in Hartford Bakery quote*
Total Equipment Costs (B)		B =	\$1,307,096	\$1,307,096	\$547,717	Indiana sales tax
Direct Installation Cost						
Foundation and Support	0.08	B	\$104,568	\$104,568	\$43,817	Included in Hartford Bakery quote*
Handling and Erection	0.14	B	\$182,993	\$182,993	\$76,680	EPA Control Cost Manual
Piping	0.02	B	\$26,142	\$26,142	\$10,954	EPA Control Cost Manual
Insulation	0.01	B	\$13,071	\$13,071	\$5,477	EPA Control Cost Manual
Electrical	0.04	B	\$52,284	\$52,284	\$21,909	EPA Control Cost Manual
Site Preparation		SP	\$0	\$0	\$0	No costs assumed associated with site preparation (conservative assumption)
Other (Painting)	0.01	B	\$13,071	\$13,071	\$5,477	EPA Control Cost Manual
Total Direct Installation Costs			\$392,129	\$392,129	\$164,315	
TOTAL Direct Investment (TDI) = (Total Equipment Cost + Total Direct Installation Cost)						
		TDI =	\$1,699,224	\$1,699,224	\$712,032	
Indirect Installation Costs						
Engineering and Supervision	0.10	B	\$130,710	\$130,710	\$54,772	EPA Control Cost Manual
Lost Production (for Retrofit Situations Only)			\$0	\$0	\$0	Conservatively assume no lost production
Construction and Field Expenses	0.05	B	\$65,355	\$65,355	\$27,386	EPA Control Cost Manual
Contractor Fees	0.10	B	\$130,710	\$130,710	\$54,772	EPA Control Cost Manual
Start-up	0.02	B	\$26,142	\$26,142	\$10,954	EPA Control Cost Manual
Performance Tests	0.01	B	\$13,071	\$13,071	\$5,477	EPA Control Cost Manual
Overall Contingencies	0.03	B	\$39,213	\$39,213	\$16,431	EPA Control Cost Manual
Total Indirect Installation Costs (TIC)		TIC =	\$405,200	\$405,200	\$169,792	
TOTAL CAPITAL INVESTMENT (TCI) = (TDI + TIC)						
		TCI =	\$2,104,424	\$2,104,424	\$881,824	
ANNUAL OPERATION & MAINTENANCE						
Direct Operating Costs (DA)						
Operating Labor	0.5 hr/shift	\$26.46	\$14,447	\$14,447	\$14,447	Cost per hour based on Hartford Bakery BACT analysis*
Supervisor	15% of operator	0.15	\$2,167	\$2,167	\$2,167	EPA Control Cost Manual
Maintenance Labor	0.5 hr/shift	\$34.17	\$18,657	\$18,657	\$18,657	Cost per hour based on Hartford Bakery BACT analysis*
Maintenance Parts	100% of Labor		\$18,708	\$18,708	\$18,708	EPA Control Cost Manual
						Utility costs are based on Hartford Bakery's quote for a catalytic oxidizer. A catalytic oxidizer installed on New Horizons New Muffin Line would need to be sized for a higher air flow than the Hartford catalytic oxidizer. Therefore gas and electric costs would be higher for New Horizons and these estimates are conservative*
Gas (Equipment Ratings)		\$8.256/mmbtu	\$20,395	\$20,395	\$20,395	No costs associated with water for catalytic oxidizer
Electricity (Equipment Ratings)		\$0.0742/kwh	\$17,030	\$17,030	\$17,030	No costs associated with water surcharge
Water			\$0	\$0	\$0	No costs associated with replacement parts (including catalyst) conservatively assumed for this analysis
Water Surcharge			\$0	\$0	\$0	
Replacement Parts			\$0	\$0	\$0	
Total Direct Operating Costs (DA)		DA =	\$91,404	\$91,404	\$91,404	
Indirect Operating Costs (IC)						
		60% of sum of operating, maintenance labor and materials				
Overhead			\$31,087	\$31,087	\$31,087	EPA Control Cost Manual
Administrative Charges	0.02	TC	\$42,088	\$42,088	\$17,636	EPA Control Cost Manual
Property Tax	0.01	TC	\$21,044	\$21,044	\$8,818	EPA Control Cost Manual
Insurance	0.01	TC	\$21,044	\$21,044	\$8,818	EPA Control Cost Manual
Capital Recovery Cost Factor (Assumes 7% interest over 10 years)	$\frac{[i*(1+i)^n]}{[(1+i)^n]-1}$	0.1424	\$299,623	\$299,623	\$125,552	EPA Control Cost Manual
Capital Recovery Cost	Factor * (TCI-1.08(Catalyst)	0.1424				Catalyst costs conservatively assumed to be \$0.
Total Indirect Operating Costs (IA)		IA =	\$115,264	\$115,264	\$66,360	
Heat Recovery Credits			\$0	\$0	\$0	No Heat Recovery Credits assumed for this analysis
Total Operating Costs (DA + IA - Heat Recovery Credits)		TOC =	\$206,668	\$206,668	\$157,764	
Total Annualized Cost (Capital Recovery Cost + TOC)						
		TAC =	\$506,291	\$506,291	\$283,316	
Tons VOC PTE =						
			31.65	6.70	24.95	Option 1 = Emissions from oven, proof box, and natural gas combustion.
Tons VOC Removed @ 95% =			30.07	6.37	23.70	Option 2 = Emissions from proof box.
Cost per Ton VOC Removed (TAC / Tons VOC Removed) =			\$16,838	\$79,526	\$11,953	Option 3 = Emissions from oven and natural gas combustion

Notes
*Costs based Hartford Bakery (Evansville, IN) BACT analysis (see Significant Source Modification No. 163-31953-00040 issued August 21, 2012). For this BACT analysis, the capital cost of the catalytic oxidizer was adjusted based on the air flow rates.

\$280,700 Hartford capital cost estimate
4,000 scfm, air flow of catalytic oxidizer in Hartford quote
9,872 scfm, air flow rate of the new muffin griddle stack at New Horizons Baking Company

The cost of a catalytic oxidizer for New Horizons is calculated using the sixth tenths rule or "power rule" which is a technique for scaling cost data as provided in the following Ohio EPA guidance document:

<http://www.epa.state.oh.us/portals/27/engineer/eguides/guide46.pdf>

\$ 482,672.04 Cost in 2010 dollars for a catalytic oxidizer

218.1 CPI for 2010

231.3 CPI through October 2012

Consumer Price Index Values were obtained from the following site

[U.S. Department Of Labor - Bureau of Labor Statistics, Consumer Price Index, ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt](http://www.bls.gov/pub/special.requests/cpi/cpiiai.txt)

\$ 511,884.66 Capital cost of catalytic oxidizer in 2012 dollars

The cost of the clean room is based on \$/square foot. New Horizons estimates that 2,430 sq ft would be necessary to enclose the proof box on the muffin line. The following site is used to estimate the cost of the clean room:

http://www.idc-ch2m.com/services/cleanroom/cleanroom_cost.asp

\$709,700 cost of class 1000 clean room that is 2,430 sq ft

EPA Control Cost Manual factors are from Section 3.2 VOC Destruction Controls Chapter 2, Table 2.8 for Incinerators of the Sixth Edition of the EPA Air Pollution Control Cost Manual (January 2002)

http://www.epa.gov/ttn/catc1/dir1/c_allchs.pdf

Appendix C: Cost Analyses for Control Devices
Controlling Muffin Lines (Line B and Line H)

Company Name: New Horizons Baking Company
Address City IN Zip: 700 W. Water Street, Fremont, Indiana 46737
Part 70 Operating Permit Number: T151-31292-00060
Significant Source Modification No.: 151-32848-00060
Reviewer: Jason R. Krawczyk
Date: February 25, 2013

Controlling Emissions from the Muffin Lines B & H, using a Single Catalytic Oxidizer			Units Controlled			Notes
			Option 1 Proof Boxes and Ovens	Option 2 Proof Boxes Only	Option 3 Ovens Only	
DIRECT COST (Pollution Control Equipment)	Miscellaneous	Unit Cost	TOTAL (\$)	TOTAL (\$)	TOTAL (\$)	
Direct Purchased Equipment						
	A =		\$ 2,266,654.31	\$ 2,266,654.31	\$ 801,454.31	Capital Cost for catalytic oxidizer based on Hartford Bakery BACT Analysis* Option 1: Equipment total includes catalytic oxidizer and clean rooms Option 2: Equipment total includes catalytic oxidizer and clean rooms Option 3: Equipment total includes catalytic oxidizer only Note: The cost for additional duct work to route emissions from two muffin lines to a single control not considered (conservative assumption).
Equipment Total (A)						
Instrumentation	0.10	A	Included	Included	Included	Included in Hartford Bakery quote*
Sales Taxes	0.07	A	\$158,666	\$158,666	\$56,102	Indiana sales tax
Freight	0.05	A	Included	Included	Included	Included in Hartford Bakery quote*
Total Equipment Costs (B)	B =		\$2,425,320	\$2,425,320	\$857,556	
Direct Installation Cost						
Foundation and Support	0.08	B	\$194,026	\$194,026	\$68,604	EPA Control Cost Manual
Handling and Erection	0.14	B	\$339,545	\$339,545	\$120,058	EPA Control Cost Manual
Piping	0.02	B	\$48,506	\$48,506	\$17,151	EPA Control Cost Manual
Insulation	0.01	B	\$24,253	\$24,253	\$8,576	EPA Control Cost Manual
Electrical	0.04	B	\$97,013	\$97,013	\$34,302	EPA Control Cost Manual
Site Preparation	SP		\$0	\$0	\$0	No costs assumed associated with site preparation (conservative assumption)
Other (Painting)	0.01	B	\$24,253	\$24,253	\$8,576	EPA Control Cost Manual
Total Direct Installation Costs			\$727,596	\$727,596	\$257,267	
TOTAL Direct Investment (TDI) = (Total Equipment Cost + Total Direct Installation Cost)						
	TDI =		\$3,152,916	\$3,152,916	\$1,114,823	
Indirect Installation Costs						
Engineering and Supervision	0.10	B	\$242,532	\$242,532	\$85,756	EPA Control Cost Manual
Lost Production (for Retrofit Situations Only)			\$0	\$0	\$0	Conservatively assumes no lost production
Construction and Field Expenses	0.05	B	\$121,266	\$121,266	\$42,878	EPA Control Cost Manual
Contractor Fees	0.10	B	\$242,532	\$242,532	\$85,756	EPA Control Cost Manual
Start-up	0.02	B	\$48,506	\$48,506	\$17,151	EPA Control Cost Manual
Performance Tests	0.01	B	\$24,253	\$24,253	\$8,576	EPA Control Cost Manual
Overall Contingencies	0.03	B	\$72,760	\$72,760	\$25,727	EPA Control Cost Manual
Total Indirect Installation Costs (TIC)	TIC =		\$751,849	\$751,849	\$265,842	
TOTAL CAPITAL INVESTMENT (TCI) = (TDI + TIC)						
	TCI =		\$3,904,765	\$3,904,765	\$1,380,665	
ANNUAL OPERATION & MAINTENANCE						
Direct Operating Costs (DA)						
Operating Labor	0.5 hr/shift	\$26.46	\$14,447	\$14,447	\$14,447	Cost per hour based on Hartford Bakery BACT analysis*
Supervisor	15% of operator	0.15	\$2,167	\$2,167	\$2,167	EPA Control Cost Manual
Maintenance Labor	0.5 hr/shift	\$34.17	\$18,657	\$18,657	\$18,657	Cost per hour based on Hartford Bakery BACT analysis*
Maintenance Parts	100% of Labor		\$18,708	\$18,708	\$18,708	EPA Control Cost Manual
						Utility costs are based on Hartford Bakery's quote for a catalytic oxidizer. A catalytic oxidizer installed on New Horizons existing and proposed Muffin Lines would need to be sized for a higher air flow than the Hartford catalytic oxidizer. Therefore gas and electric costs would be higher for New Horizons and these estimates are conservative*
Gas (Equipment Ratings)	\$8.256/mmbtu		\$20,395	\$20,395	\$20,395	
Electricity (Equipment Ratings)	\$0.0742/kwh		\$17,030	\$17,030	\$17,030	
Water			\$0	\$0	\$0	No costs associated with water for catalytic oxidizer
Water Surcharge			\$0	\$0	\$0	No costs associated with water surcharge
Replacement Parts			\$0	\$0	\$0	No costs associated with replacement parts (including catalyst) conservatively assumed for this analysis
Total Direct Operating Costs (DA)	DA =		\$91,404	\$91,404	\$91,404	
Indirect Operating Costs (IC)						
Overhead	60% of sum of operating, maintenance labor and materials		\$31,087	\$31,087	\$31,087	EPA Control Cost Manual
Administrative Charges	0.02	TC	\$78,095	\$78,095	\$27,613	EPA Control Cost Manual
Property Tax	0.01	TC	\$39,048	\$39,048	\$13,807	EPA Control Cost Manual
Insurance	0.01	TC	\$39,048	\$39,048	\$13,807	EPA Control Cost Manual
Capital Recovery Cost Factor (Assumes 7% interest over 10 years)	$\frac{[i*(1+i)^n]}{[(1+i)^n-1]}$	0.1424	\$555,951	\$555,951	\$196,576	EPA Control Cost Manual
Capital Recovery Cost	Factor * (TCI-1.08(Catalyst	0.1424				Catalyst costs conservatively assumed to be \$0.
Total Indirect Operating Costs (IA)	IA =		\$187,278	\$187,278	\$86,314	
Heat Recovery Credits			\$0	\$0	\$0	No Heat Recovery Credits assumed for this analysis
Total Operating Costs (DA + IA - Heat Recovery Credits)	TOC =		\$278,682	\$278,682	\$177,718	
Total Annualized Cost (Capital Recovery Cost + TOC)						
	TAC =		\$834,632	\$834,632	\$374,293	
Tons VOC PTE =						
			66.81	14.15	52.66	Option 1 = Emissions from ovens, proof boxes, and natural gas combustion. Option 2 = Emissions from proof boxes. Option 3 = Emissions from ovens and natural gas combustion.
Tons VOC Removed @ 95% =						
			63.47	13.44	50.03	
Cost per Ton VOC Removed (TAC / Tons VOC Removed) =						
			\$13,150	\$62,100	\$7,482	
Notes						

*Costs based Hartford Bakery (Evansville, IN) BACT analysis (see Significant Source Modification No. 163-31953-00040 issued August 21, 2012). For this BACT analysis, the capital cost of the catalytic oxidizer was adjusted based on the air flow rates.

\$280,700 Hartford capital cost estimate
4,000 scfm, air flow of catalytic oxidizer in Hartford quote
20,841 scfm, combined air flow rate of the existing and new muffin griddle stacks at New Horizons Baking Company

The cost of a catalytic oxidizer for New Horizons is calculated using the sixth tenths rule or "power rule" which is a technique for scaling cost data as provided in the following Ohio EPA guidance document:

<http://www.epa.state.oh.us/portals/27/engineer/eguides/guide46.pdf>

\$ 755,716.32 Cost in 2010 dollars for a catalytic oxidizer

218.1 CPI for 2010

231.3 CPI through October 2012

Consumer Price Index Values were obtained from the following site

[U.S. Department Of Labor - Bureau of Labor Statistics, Consumer Price Index, ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt](http://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt)

\$ 801,454.31 Capital cost of catalytic oxidizer in 2012 dollars

The cost of the Line B clean room is based on \$/square foot. New Horizons estimates that 2,700 sq ft would be necessary to enclose the proof box on Line B. The following site is used to estimate the cost of the clean room:

http://www.idc-ch2m.com/services/cleanroom/cleanroom_cost.asp

\$755,500 cost of class 1000 clean room that is 2,700 sq ft

The cost of the Line H clean room is based on \$/square foot. New Horizons estimates that 2,430 sq ft would be necessary to enclose the proof box on Line H. The following site is used to estimate the cost of the clean room:

http://www.idc-ch2m.com/services/cleanroom/cleanroom_cost.asp

\$709,700 cost of class 1000 clean room that is 2,430 sq ft

EPA Control Cost Manual factors are from Section 3.2 VOC Destruction Controls Chapter 2, Table 2.8 for Incinerators of the Sixth Edition of the EPA Air Pollution Control Cost Manual (January 2002)

http://www.epa.gov/ttn/catc1/dir1/c_allchs.pdf

Appendix C: Cost Analyses for Control Devices
Consumer Price Index

Page 4 of 4 TSD App C

Company Name: New Horizons Baking Company
Address City IN Zip: 700 W. Water Street, Fremont, Indiana 46737
Part 70 Operating Permit Number: T151-31292-00060
Significant Source Modification No.: 151-32848-00060
Reviewer: Jason R. Krawczyk
Date: February 25, 2013

Consumer Price Index ^a	
1988	118.3
1995	152.4
1996	156.9
1997	160.5
1998	163
1999	166.6
2000	172.2
2001	177.1
2002	179.9
2003	184
2004	188.9
2005	195.3
2006	201.6
2007	206.6
2008	215.3
2009	214.5
2010	218.1
2011	224.9
2012 ^b	231.3

^a U.S. Department Of Labor - Bureau of Labor Statistics, Consumer Price Index,
<ftp://ftp.bls.gov/pub/special.requests/cpi/cpia1.txt>

^b 2012 CPI through October 2012



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

ATTENTION: PUBLIC NOTICES, LEGAL ADVERTISING

April 8, 2013

Herald Republican
P.O. Box 180
Angola, Indiana 46703

Enclosed, please find one Indiana Department of Environmental Management Notice of Public Comment for New Horizons Baking Company in Steuben County, Indiana.

Since our agency must comply with requirements which call for a Notice of Public Comment, we request that you print this notice one time, no later than April 11, 2013.

Please send a notarized form, clippings showing the date of publication, and the billing to the Indiana Department of Environmental Management, Accounting, Room N1345, 100 North Senate Avenue, Indianapolis, Indiana, 46204.

We are required by the Auditor's Office to request that you place the Federal ID Number on all claims. If you have any conflicts, questions, or problems with the publishing of this notice or if you do not receive complete public notice information for this notice, please call Debra Pabst at 800-451-6027 and ask for extension 4-5256 or dial 317-234-5256.

Sincerely,

Debra Pabst
Permit Branch
Office of Air Quality

cc: Pat Cuzzort: OAQ Billing, Licensing and Training Section
Permit Level: Title V
Permit Number: 151-31292-00060 and 151-32848-00060

Enclosure
PN Newspaper.dot 3/27/08



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

Matt Bowers
New Horizons Baking Company
700 Water St
Fremont, IN 46737

Re: Public Notice
New Horizons Baking Company
Permit Level: Title V
Permit #151-32848-00060 & 151-31292-00060

Dear Mr. Bowers:

Enclosed is a copy of your draft Title V, Technical Support Document, emission calculations, and the Public Notice which will be printed in your local newspaper.

The Office of Air Quality (OAQ) has submitted the draft permit package to the Fremont Public Library, 2145 E North St POB 7 in Fremont, IN. As a reminder, you are obligated by 326 IAC 2-1.1-6(c) to place a copy of the complete permit application at this library no later than ten (10) days after submittal of the application or additional information to our department. We highly recommend that even if you have already placed these materials at the library, that you confirm with the library that these materials are available for review and request that the library keep the materials available for review during the entire permitting process.

You will not be responsible for collecting any comments, nor are you responsible for having the notice published in the newspaper. The OAQ has requested that the *Herald Republican in Angola, IN April 11*.

Please review the enclosed documents carefully. This is your opportunity to comment on the draft permit and notify the OAQ of any corrections that are needed before the final decision. Questions or comments about the enclosed documents should be directed to Jason Krawczyk, Indiana Department of Environmental Management, Office of Air Quality, 100 N. Senate Avenue, Indianapolis, Indiana, 46204 or call (800) 451-6027, and ask for extension 3-0870 or dial (317) 233-0870.

Sincerely,

Debra Pabst
Permits Branch
Office of Air Quality

Enclosures
PN Applicant Cover letter. dot 3/27/08



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

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100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

To: Fremont Public Library

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information to Display Regarding a Public Notice for an Air Permit**

Applicant Name: New Horizons Baking Company
Permit Number: 151-32848-00060 151-31292-00060

Enclosed is a copy of important information to make available to the public. This proposed project is regarding a source that may have the potential to significantly impact air quality. Librarians are encouraged to educate the public to make them aware of the availability of this information. The following information is enclosed for public reference at your library:

- Notice of a 30-day Period for Public Comment
- Request to publish the Notice of 30-day Period for Public Comment
- Draft Permit and Technical Support Document

You will not be responsible for collecting any comments from the citizens. Please refer all questions and request for the copies of any pertinent information to the person named below.

Members of your community could be very concerned in how these projects might affect them and their families. **Please make this information readily available until you receive a copy of the final package.**

If you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185. Questions pertaining to the permit itself should be directed to the contact listed on the notice.

Enclosures
PN Library.dot 03/27/08



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

Notice of Public Comment

New Horizons Baking Company **151-31292-00060 & 151-32848-00060**

Dear Concerned Citizen(s):

You have been identified as someone who could potentially be affected by this proposed air permit. The Indiana Department of Environmental Management, in our ongoing efforts to better communicate with concerned citizens, invites your comment on the draft permit.

Enclosed is a Notice of Public Comment, which has been placed in the Legal Advertising section of your local newspaper. The application and supporting documentation for this proposed permit have been placed at the library indicated in the Notice. These documents more fully describe the project, the applicable air pollution control requirements and how the applicant will comply with these requirements.

If you would like to comment on this draft permit, please contact the person named in the enclosed Public Notice. Thank you for your interest in the Indiana's Air Permitting Program.

Please Note: *If you feel you have received this Notice in error, or would like to be removed from the Air Permits mailing list, please contact Patricia Pear with the Air Permits Administration Section at 1-800-451-6027, ext. 3-6875 or via e-mail at PPEAR@IDEM.IN.GOV. If you have recently moved and this Notice has been forwarded to you, please notify us of your new address and if you wish to remain on the mailing list. Mail that is returned to IDEM by the Post Office with a forwarding address in a different county will be removed from our list unless otherwise requested.*

Enclosure
PN AAA Cover.dot 3/27/08

Mail Code 61-53

IDEM Staff	DPABST 4/8/2013 New Horizons Baking Company 151-31292-00060 & 151-32848-00060 (Draft)		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING	
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204		

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handling Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee
											Remarks
1		Matt Bowers New Horizons Baking Company 700 W Water St Fremont IN 46737 (Source CAATS)									
2		Steuben County Board of Commissioners 317 S Wayne Suite 2H Angola IN 46703 (Local Official)									
3		Steuben County Health Department 317 S. Wayne St, Community Center Suite 3-A Angola IN 46703-1938 (Health Department)									
4		Mr. Steve Christman NISWMD 2320 W 800 S, P.O. Box 370 Ashley IN 46705 (Affected Party)									
5		Fremont Public Library 2145 E North St, P.O. Box 7 Fremont IN 46737-0007 (Library)									
6		Fremont Town Council PO Box 10, 204 N. Coffin Street Fremont IN 47432 (Local Official)									
7		Mr. Diane Hanson 490 E 300 N Angola IN 46703 (Affected Party)									
8		Orland Town Council P.O. Box 445 Orland IN 46776 (Local Official)									
9		Ms. Tammy Endlish Endlish Environmental 503 Berkshire Ct Huron OH 44839 (Consultant)									
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